A MULTICOMPONENT MULTIDISCIPLINARY APPROACH TO OBESITY MANAGEMENT

Anita Jane Cochrane

M Org Psych, Post Grad Dip Psych, Post Grad Dip Nutr & Diet, Dip Clin Hypnosis, B App Sci (Psych), B Sc

Submitted in fulfilment of the requirements for the degree of

Doctor of Philosophy

Institute of Health and Biomedical Innovation (IHBI)

School of Exercise and Nutrition Sciences

Faculty of Health Queensland

University of Technology

February 2014

Keywords

Action Research, Convergent Interviewing, Multicomponent, Multidisciplinary, Obesity, Qualitative Research, Weight Management.

Abstract

The human biological predisposition to protect against starvation juxtaposed by an environment that promotes and justifies overconsumption and limits physical activity appears to have contributed to a global obesity epidemic. Current research suggests that there is no single and non-surgical approach that has been found to universally and effectively treat obesity in the long term.

Current evidence indicates that the complexity of drivers associated with obesity explains why a "one size fits all" approach is naïve. Researchers have begun to see merit in multi-component and multi-disciplinary (MCMD) approaches that tailor interventions to the individual. In this study, I have sought to explore the potential of the MCMD approach through an examination of knowledge, skills, beliefs, and recommendations of stakeholders interested in obesity management. Stakeholders included researchers, practitioners, educators and clients.

Through a qualitative action research method, the process of inquiry confirmed the stakeholders' support for a MCMD approach. Thus, a preliminary MCMD model for obesity management was developed. Four central themes on which to predicate the MCMD approach emerged from the data. The themes included client factors, practitioner factors, process factors and environmental factors. To realise this model a paradigm shift is required wherein the health provider, the individual and the environment are targeted to improve the management of obesity.

Stakeholders identified a number of barriers that are likely to impact on the implementation of a MCMD approach. Two of the most significant barriers are discussed, namely funding and professional roles and boundaries. Barriers will be more fully addressed during the implementation phase. The implementation phase of the MCMD model is planned to take place (again using action research) after completion of the thesis to further refine the model in practice.

In summary, the action research methodology demonstrated how stakeholder communities (e.g., practitioners, researchers, clients) can contribute to reframing current approaches to obesity management. The findings of this study informed a system-based MCMD obesity management model that is responsive to the needs of the client and practitioner in an obesogenic environment.

Table of Contents

List of Figures

List of Tables

List of Abbreviations

American Dietetic Association (ADA)

Australian Medical Association (AMA)

Australian Psychological Society (APS)

Chronic Care Model (CCM)

Continuing professional development (CPD)

Dietitians Association of Australia (DAA)

Exercise and Sports Science Australia (ESSA)

General practitioner (GP)

Institute of Medicine (IOM)

Multicomponent (MC)

Multicomponent Multidisciplinary (MCMD)

Multidisciplinary (MD)

National Health and Medical Research Council (NHMRC)

National Heart Lung Blood Institute (NHBLI)

Randomised Control Trials (RCTs)

Queensland University of Technology (QUT)

Statement of Original Authorship

The work contained in this thesis has not been previously submitted to meet requirements for an award at this or any other higher education institution. To the best of my knowledge and belief, the thesis contains no material previously published or written by another person except where due reference is made.

Signature:

Date: 17th February 2014

Stylistic Features

Referencing

I have used the American Psychological Association (APA) 6th edition publication manual as a style guide for referencing (American Psychological Association, 2009). Accordingly, I have set Endnote, a referencing management software, to APA 6th.

Narrative mode

As the APA, 6th edition, encourages use of personal pronouns such as "I" (first person, singular) or "we" (first person, plural) to reduce ambiguity (American Psychological Association, 2009) and because this is the favoured writing style for action research theses (Herr & Anderson, 2005), I have adopted this writing style. When using the pronoun "I", I am enhancing my visibility as the researcher, author or practitioner, and when I use the term "we", as recommended by the APA style guide, I am referring to myself and my supervisors.

Acknowledgements

I would like to express deep and genuine gratitude to my two main supervisors Neil King and Bob Dick. Their support and guidance has been pivotal in producing this body of work. Neil kept me going when I encountered life's challenges and mentored me every step of the way. Bob generously shared his time, knowledge, experience and process models to help make this research something that can be meaningfully applied in the "real world. I would also like to thank my secondary supervisors David Kavanagh and Andrew Hills for their thought provoking contributions at different stages of the program.

The support of a fellow student who walked the PhD path with me, Katy Horner, has also been deeply appreciated. I am also very grateful for the support of my son Sai during my PhD candidature. Of course, this research could not have taken place without the contributions of the many stakeholders who provided the data on which this model was developed. Similarly, I could not have conducted this research without the support and resources provided by QUT. As "a university for the real world" it has enabled me to conduct research on the "real world" problem of obesity from the "real world" perspective of clients, and practitioners and researchers working in the area.

Chapter 1: Introduction

"Keep doing what you've been doing and you will keep getting what you've been getting!"

Jackie B Cooper (American automotive industry trainer and pioneer, 1939-2001)

1.1 OVERVIEW

1.1.1 My Pre-Inquiry View-Point

As a dual psychology and dietetics professional, I have worked extensively with people who have struggled with weight or eating issues (many with psychological comorbidities). Since graduating in the '80s I have observed increasing levels of obesity in my clients. This trend paralleled the emergence of a "food-focused" culture. There has been fast food, takeaway food, convenience food, snack food, gourmet food, ethnic food, food for celebrations, cooking shows, speciality food stores, 7-day supermarkets, and an explosion of restaurants and cafes. This sociocultural focus on food, combined with a concomitant inability to delay gratification (Cutler, Glaeser, & Shapiro, 2003; Macdonald, 2007), has likely to have contributed to an increase in overweight and obesity. The phenomenon that has inadvertently fuelled a self-sustaining system of overweight and obesity is referred to as the obesogenic environment (Swinburn, Egger, & Raza, 1999). Marketing and advertising have also contributed significantly to the obesogenicity of the environment (Stanton, 2011). Advertising encourages immediate gratification (Cohen, 2008) and has been shown to have a causal and direct effect on eating behaviour, particularly on children's food preferences (Harris, Pomeranz, Lobstein, & Brownell, 2009).

In my experience as a practitioner I have seen overweight and obese people who are aware of their poor choice in choosing to eat "junk food." They know that their poor eating choices will ultimately have an impact on their health, as well as their weight. However, their ability to justify the behaviour appears to make eating the "junk food" tolerable and repeatable. Denial, it seems, has become an intractable ego defence that maintains, often self-proclaimed, vicious cycles of self-destructive weight-related habits. I have observed clients who do not challenge unhelpful beliefs that hinder

health-related change. Common self-defeating beliefs I have heard include: “I’ll never lose weight”, “It’s too hard”, “I can’t control it”, “I don’t like exercise”, and “Nothing has worked.” I have noticed clients becoming committed to their beliefs, and even investing effort into proving them right. This self-fulfilling pattern serves to embed their self-defeating behaviours even deeper. Combined with this pattern has been a well-established arsenal of self-defeating justifications and excuses for their bad behaviour. Typical examples have been: “I’ll start on Monday”; “I’ll be able to exercise more when summer comes”; “I’ll really focus on my diet when the stress at work settles”; and, “One chocolate won’t affect my health, and anyway, I deserve it.” Paradoxically, it seems that overweight and obese clients, despite professing a desire to lose weight, choose not to exercise self-control, behaviourally or cognitively.

As reported in the literature (e.g., Galani & Schneider, 2007), I found that helping clients achieve weight loss was achievable in the short-term. However, assisting clients to maintain long term weight loss has been more challenging. Even when their self-defeating patterns are made explicit, clients continue to relapse on their self-initiated weight loss programs. I have learned that “telling” a client to lose weight doesn’t work. Providing dietary and behavioural advice, or handing out diet plans, has also been unsuccessful. However, these strategies are what most health professionals are trained to do, or all they have time for. Ultimately, I came to understand that a sole professional cannot provide the solution for a condition as seemingly refractory to treatment as obesity. The time constraints imposed by working in a busy practice hindered a deliberate focus on identifying more effective treatments. I subsequently elected to formally research ways to elicit and maintain health-related behaviour change in clients. My hope was that this research would identify strategies to improve my own practice, and perhaps those of other practitioners in the field. As a helping professional, my ultimate aim was to be more effective in assisting clients to lose and maintain weight and achieve other health-related goals.

1.1.2 Initial Process

An outcome of discussions with my supervisory team (the working party) was to: explore recommendations in international position papers and guidelines for obesity; and establish a set of propositions that would justify my inquiry into understanding obesity and identifying more effective treatment strategies to improve my practice. The five propositions that underpinned the inquiry are listed below:

- there is a global pandemic of obesity;
- the obesogenic environment has contributed to obesity prevalence;
- the comorbidities of obesity have contributed to increased obesity-related healthcare costs;
- there has been a general lack of success in identifying an evidence-based (non-surgical), "failsafe" solution for curbing obesity prevalence; and,
- there has been difficulty in translating international, position-paper recommendations for multicomponent (MC) and multidisciplinary (MD) approaches for obesity management, into practice.

I elaborate on these five propositions next, then summarise the research problem and present the main thematic concern and methods to address the thematic concern. I then expand on the significance and scope of the project and explain some terminology. A final summary of my learning outcomes during the early stages of this doctoral research (proposal for the research and stage 2) concludes the introduction.

1.2 BACKGROUND TO THE PROBLEM OF OBESITY

My inquiry was predicated on the following propositions.

1.2.1 Proposition One

There is a global pandemic of obesity.

Many authors, such as Flegal, Carroll, Ogden and Curtin (2010) and the World Health Organisation (2010), provide epidemiological evidence that shows how obesity prevalence has increased over the last few decades. Paralleling increased obesity prevalence has been a rise in chronic disease that is imposing a significant strain on the health of worldwide populations and health systems (Atlantis, Lange, & Wittert, 2009; World Health Organisation, 2004). The global rise in obesity prevalence emerged concurrently in most high-income countries in the 1970s and 1980s (Sassi, Devaux, Cecchini, & Rusticelli, 2009). In the United States, the age-adjusted prevalence of obesity was 22.95% for the period between 1988 and 1994; from 1999-2000, it increased to 30.5% (Flegal, Carroll, Ogden, & Johnson, 2002). By 2007-2008

the prevalence of obesity in the U.S. was reported at 32.2% in adult men, and 35.5% in adult women (Flegal et al., 2010). There was also a notable increase in the prevalence of being overweight in the U.S. in recent decades. Between 1988 and 1994, the prevalence of being overweight in the U.S. was 55.9%. By 1999-2000 this figure had increased to 64.5%.

Australia followed a similar trajectory as the U.S. Table 1.1 presents Australia's percentages for overweight and obesity rates in adults (aged 18 years and over) from 1989-2012 (Australian Bureau of Statistics, 2008, 2013; COAG Reform Council, 2013).

Table 1.1

Overweight and Obesity Rates in Australia between 1989 -2012.

Year	% overweight or obese	% men overweight or obese	% women overweight or obese	% males obese	% females obese
1989-1990	38%	45% men	32% women	9%	10%
2004-2005	54%	62% men	45% women	19%	17%
2007-2008	61.1%	68% men	55% women	25.6%	24%
2011-2012	63%	70% men	56% women	27.5%	27.5%

According to Sassi et al.'s (2009) analysis of past and projected trends in obesity in member countries of the Organization for Economic Cooperation and Development (OECD), obesity rates in men were increasing in Austria, Canada, England, France, Hungary, Italy, Korea, Spain, and Sweden. For women, obesity rates were increasing in all member countries except Italy, Korea, and Spain, where they remained stable. For the first time in human history, the number of overweight and obese people has begun to rival those who are underweight (Mendez, Monteiro, & Popkin, 2005).

Middle and lower income countries joined the global surge in obesity in recent years (Finucane et al., 2011; Ford & Mokdad, 2008; Prentice, 2006; World Health

Organisation, 2010). Epidemiological analyses identified a marked increase in obesity prevalence in countries such as Brazil, Chile, China, India and Mexico (Popkin, 2011; Popkin, Adair, & Ng, 2012). Mexico experienced the largest increase in obesity, diabetes, and cardio-metabolic diseases between 1990 and 2010 (Barquera Cervera, Campos-Nonato, Rojas, & Rivera, 2010; Rivera, Barquera, González-Cossío, Olaiz, & Sepúlveda, 2004). The implications for current obesity trends in countries in Asia, Latin America, the Middle East, and Africa are also significant. The fat patterning and body composition of Asians, Africans, Middle Easterners, and Latin Americans predisposes them to cardio-metabolic effects at levels lower than the standard Body Mass Index (BMI) cut-off for being overweight, which is 25 (Nguyen, Adair, Suchindran, He, & Popkin, 2009; WHO, 2004).

In 2008, an estimated 1.46 billion adults were overweight globally, and of these, 205 million men and 297 million women were obese (Finucane et al., 2011). The increase in childhood obesity is also a concern. In 2006, the U.S. reported that one in three children were classified as overweight or obese, and up to one in two children in some minority groups (Ogden et al., 2006). In 2007-2008, one quarter of Australian children (approximately 600,000) aged 5-17 years were classified as overweight or obese (Australian Bureau of Statistics, 2008). These rates remained stable for the 2011-2012 period (Australian Bureau of Statistics, 2013). The International Association for the Study of Obesity (IASO)/International Obesity Taskforce (IOTF) has estimated that up to 200 million school-aged children are either overweight or obese. Between 40 and 50 million of these children were classified as obese (International Association for the Study of Obesity, 2010). Evidence suggests that overweight and obese children are likely to carry this condition into adulthood, increasing their risk for developing medical co-morbidities. They are also likely to experience psychosocial consequences such as bullying, teasing, and social isolation (Australian Institute of Health and Welfare, 2004). Some researchers forecast a resurgence of obesity prevalence through trans-generational mechanisms if effective interventions are not developed (Ludwig, 2007). Others predict that paediatric obesity may contribute to the current generation of children having shorter life expectancies than their parents by 2 to 5 years (Olshansky et al., 2005). However, research also supports the notion that childhood obesity is preventable (Ajala et al., 2012). The stability of overweight and obesity rates in Australian children between 2007 and 2012 is certainly promising.

The burden of current obesity trends on general health, quality of life, productivity, longevity, and health care costs is staggering (discussed in Proposition Three below). A recent analysis of obesity trends between 1980 and 2008 estimated a 0.4kg/m^2 per decade increase in the mean BMI worldwide for men, and a 0.5kg/m^2 per decade increase for women (Finucane et al., 2011). These trends suggest that the ceiling for obesity prevalence has not been reached; they highlight the benefit of having more effective ways to reverse the prevailing trajectory of obesity incidence.

1.2.2 Proposition Two

The aetiology of the obesity pandemic appears to have arisen in response to a majority of people maladapting to an obesogenic environment.

The human species has two key adaptive features that differ from the features of other non-human primates. Firstly, humans have a larger body mass with an increased energetic burden. Secondly, they have an ability to accumulate adipose tissue as a buffer between high energy turnover and variable food supply (Aiello & Wells, 2002). These adaptive features supported the survival of our species until about 10,000 years ago. Around this time, the environmental situation changed with the introduction of agriculture and animal husbandry (Konner & Eaton, 2010). We moved from hunter-gatherer diets consisting of minimally processed wild plant and animal foods, to a current diet heavily composed of dairy products, cereal grains, refined sugars, vegetable oils, alcohol, and salt. These alterations in the food system caused changes in dietary indicators such as glycaemic index, fibre, fatty acid composition, macronutrient composition, micronutrient density, acid-alkaline balance, and sodium-potassium ratio (Cordain et al., 2005). Another notable change is the difference in disease prevalence. Diseases that were virtually non-existent among hunter-gatherers reached epidemic proportions in modern civilisation. Some researchers have argued that the changes in nutritional characteristics underpin the global escalation of chronic non-communicable diseases (Cordain et al., 2005; Konner & Eaton, 2010). It has been further postulated that the human genome has not had time to adapt to the new food supply (Kumanyika, Jeffery, Morabia, Ritenbaugh, & Antipatis, 2002). Regardless, it seems that our ability to store fat has shifted from an adaptive asset for survival to a liability for most people.

A major issue that health systems currently face worldwide is the over-consumption of food caused by technological innovation and changing socio-demographic factors spawned by "progress" (Bleich, Cutler, Murray, & Adams, 2008; Finkelstein, Ruhm, & Kosa, 2005). This tendency is aggravated by a sedentary lifestyle in a global environment, now referred to as "obesogenic." Obesogenicity refers to "the sum of influences that the surroundings, opportunities, or conditions of life have on promoting obesity in individuals or populations" (Swinburn et al., 2011, p. 564). The obesity prevalence statistics reported in Proposition One reveal our maladaptation to increasing environmental obesogenicity over the past 40 years.

Researchers have attempted to identify the environmental factors that have contributed to this rapid global change in human body weight. Swinburn et al. (2011) made a distinction between environmental drivers and environmental moderators or modulators. Environmental drivers are factors that have changed significantly over the past 40 years, are global in nature, and are quickly transmissible. Environmental moderators or modulators increase or decrease the impact that drivers have on the progression of obesity prevalence (see Figure 1.1). The general consensus among researchers is that the main environmental drivers for the obesity epidemic include:

- the increased supply of cheaper, more palatable, convenient and energy dense foods (Bleich et al., 2008; Cutler et al., 2003; Swinburn, Sacks, & Ravussin, 2009);
- improved distribution systems that have globalised food markets and increased access to food (Kumanyika et al., 2002); and,
- pervasive and persuasive food marketing which has promoted increased consumption (Harris et al., 2009; Kitchen, Kim, & Schultz, 2008).

Systemic drivers found in regulatory environments are considered to amplify these environmental drivers. They include both policy and the economic systems that enable a free flow of goods, services, and technologies (Popkin et al., 2012). Swinburn et al. (2011) believe factors that moderate or modulate systemic and environmental obesity drivers could be used to inform interventions and reduce obesity prevalence. These moderators could be socioeconomic, sociocultural, recreational, or transport factors.

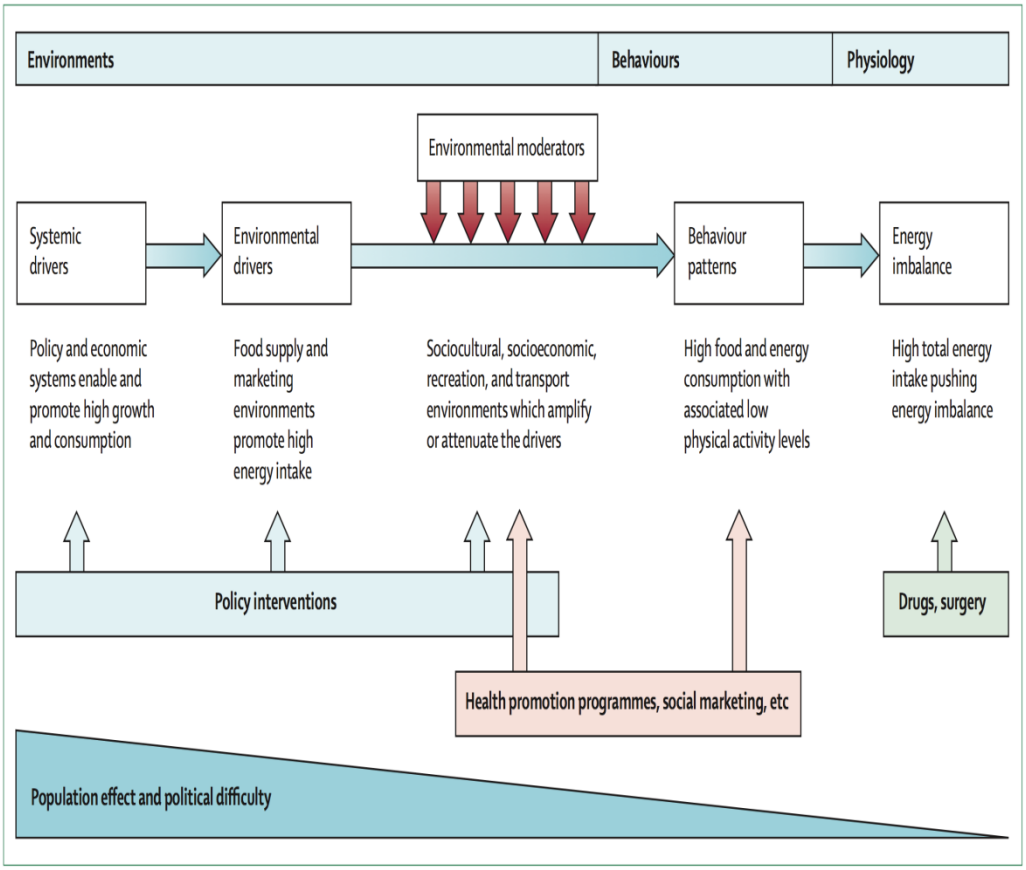

Figure 1.1. Swinburn et al.'s (2011) framework categorising obesity determinants and solutions. Reproduced with permission.

Other researchers have also used modelling frameworks to interpret and translate the drivers and moderators that contribute to the development and maintenance of obesogenic environments. These frameworks range from simple to complex substructures. The Foresight Projects (www.bis.gov.uk/foresight) are an example of a more complex framework. The Foresight Projects were studies whose aim was to gather evidence leading to future disasters that are likely to affect the world in the next 20-80 years. The reports were to be used to assist policy makers in decision-making, one of their foci being how to tackle obesity (Butland et al., 2007).

The Foresight Report on obesity presented a complex model that used qualitative modelling to portray the numerous relationships that impact weight. The full generic map of the obesity system map is too complex to present here but can be referred to at the following location: http://www.bis.gov.uk/assets/foresight/docs/obesity/11.pdf. The complexity of the Foresight maps has hampered their application in practice. However, while there are simpler models such as the ecological model (Papas et al., 2007; Swinburn et al., 1999) presented in Figure 1.2, they were developed more as a

way to understand obesity than to be applied in practice. Notwithstanding, the thematic clusters identified in the Foresight map and components of both of Swinburn et al.'s models that related to the individual (Swinburn et al., 1999; Swinburn et al., 2011) informed the multicomponent and multidisciplinary (MCMD) model that evolved during this inquiry.

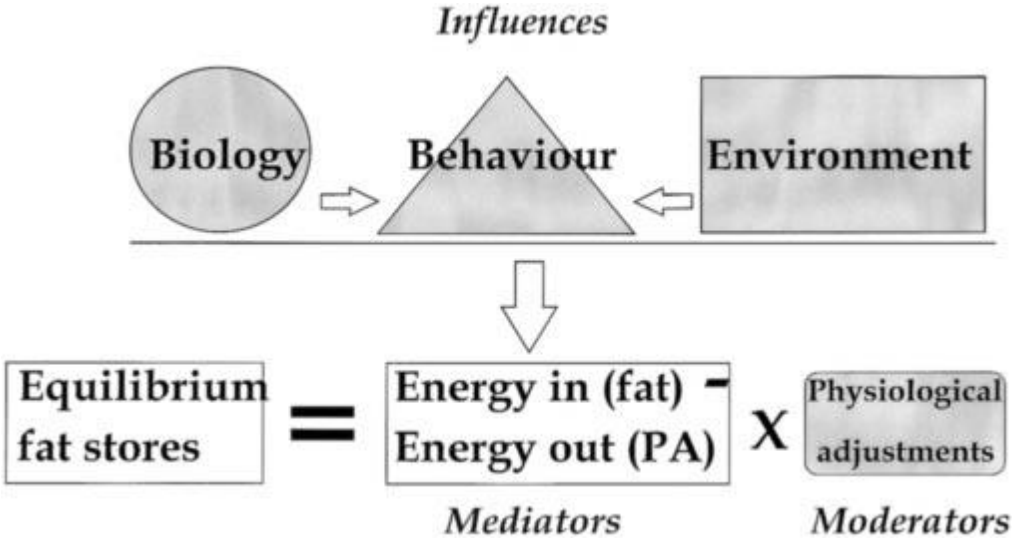

Figure 1.2. An ecological model for understanding obesity. Reproduced with permission (Swinburn et al., 1999)

Despite the significant increase in obesity prevalence, it is important to note that not everyone becomes obese when placed in an obesogenic environment. Furthermore, some formerly obese individuals have maintained weight loss after experiencing lifestyle interventions (Galani & Schneider, 2007; Wing & Hill, 2001). In an endeavour to explain these phenomena, there is an emerging body of work explaining how genes, epigenetics, and the in-utero environment can impact on the likelihood of developing obesity (Rhee, Phelan, & McCaffery, 2012). However, there have been methodological challenges to establishing conclusions in relation to polygenic obesity, and monogenic and syndromic obesity syndromes are rare (Ichihara & Yamada, 2008). Further research is warranted to determine how investigations into the genetic determinants of body weight can be applied in the clinical management of obesity (Sharma & Padwal, 2010). Subsequently, individual and environmental factors appear to provide the most immediate and practical opportunities for the management of obesity.

1.2.3 Proposition Three

The significance of the obesity pandemic is the increased risk of overweight and obese individuals developing chronic disease, and the strain this places on health systems and economies.

Overweight and obesity have a high rate of psychological and physiological comorbidity. The conditions of overweight and obesity contribute to three of the four most significant non-communicable diseases (NCD): diabetes, cardiovascular disease, and cancer (World Health Organisation, 2013) (the fourth NCD is respiratory disease). A meta-analysis of 89 studies by Guh et al. (2009) broke down the NCD categories associated with overweight and obesity. The strongest association was that of the condition of being overweight and the incidence of Type 2 diabetes in women. Guh et al. also identified the cancers associated with obesity as breast (postmenopausal), colorectal, endometrial, kidney, ovarian, and pancreatic cancers. The cardiovascular diseases associated with obesity included hypertension, coronary artery disease, congestive heart failure, pulmonary embolism, and stroke. Although no statistically significant association was found between obesity and prostate cancer in Guh et al.'s meta-analysis, more recent studies challenge this. An Australian study identified that the cohort of men who had gained more than 20kg during their adult lives has an increased risk of an aggressive form of prostate cancer (Bassett et al., 2011). Overweight and obesity are also associated with mental health issues and eating disorders (National Health and Medical Research Council, 2013).

The disease burden associated with overweight and obesity has contributed to the staggering economic costs of overweight conditions. The direct cost of overweight and obesity in Australia was estimated at $21 billion in 2005 (Colagiuri et al., 2010), $58.2 billion in 2008 (Access Economics, 2008), and $120 billion in 2011 (Fairfax Media & Lateral Economics, 2011). In the U.S. and Canada, these costs in 2009 were $270 billion and $30 billion, respectively (Behan & Cox, 2010). In 2007 the Foresight Report estimated the direct health care costs attributable to the condition of being overweight or obese in the U.K. at £4.2 billion. This figure is likely to rise to £6.3 billion by 2015 if left unchecked (Butland et al., 2007). Furthermore, diminished performance and productivity caused by the physical and mental comorbidities of obesity also add to the medical expenses of the condition. Ludwig (2007) warns, "Like

global warming, the obesity epidemic is a looming crisis that requires action before all the scientific evidence is in" (p. 2326).

1.2.4 Proposition Four

Current research suggests that there is no single individual and non-surgical approach that has been found to universally and effectively treat obesity in the long term. New thinking is required in developing models for obesity management.

A plethora of diets, self-help books, commercial weight loss programs, weight loss reality television shows, public health promotion policies, and initiatives such as the healthy food pyramid inform the general public about obesity. However, obesity, once established, in the majority of cases, has proven to be refractory to treatment (Laddu, Dow, Hingle, Thomson, & Going, 2011; National Health and Medical Research Council, 2012b). Obesity prevalence rates outlined in Section 1.2.1 above and the reviews outlined below lay testament to the challenge of reversing obesity trends.

Effectiveness of Individual-Focused Weight Management Interventions

A brief summary of reviews on the effectiveness of individual approaches is presented below. A broader summary of approaches to weight management is provided in Chapter 2.

Adult Obesity Intervention Reviews: An influential review was conducted for the Centres for Medicare and Medicaid Services (CMS) to determine if dieting is an effective form of treatment for obesity (Mann et al., 2007). Mann et al.'s review concluded that there was no strong evidence that calorie restricted diets lead to either long-term weight loss or significant improvements in health. These findings supported an earlier systematic review of major commercial weight loss programs in the United States (Tsai & Wadden, 2005). Tsai and Wadden's review found "suboptimal" support for the use of commercial and self-help weight loss programs. The only exception was for one of three randomised trials of Weight Watchers, where a loss of 3.2% of initial weight was maintained at 2 years. Of concern were the findings for medically supervised very-low-calorie diets (VLCDs). The reviewers found that patients lost approximately 15-25% of their initial weight. However, the programs were expensive, associated with high attrition rates and a high probability of regaining 50% or more of

the weight the patients lost within one to two years. Although some research studies have suggested that even a modest weight loss of 5 - 10 % of initial body weight is sufficient to achieve clinically relevant health benefits (National Health and Medical Research Council, 2003a, 2012b, 2013), recidivism rates are high for weight loss generally (Greenberg, Stampfer, Schwarzfuchs, & Shai, 2009; Laddu et al., 2011; Tsai & Wadden, 2005; Tsai & Wadden, 2009; Turk et al., 2009). Furthermore, Mann et al. (2007) questioned the fate of these health benefits when weight is regained. Mann et al. also pointed out that it is not clear whether the health benefits accrued from modest weight loss are due to the actual weight loss, exercise, pharmacological factors, or other lifestyle changes. Two specific warnings about weight loss emerged in Mann et al.'s review. Firstly, many dieters regained more weight than they lost. Secondly, continuing cycles of weight loss and regain were linked to negative health outcomes.

In view of high recidivism rates reported for weight loss programs, Turk (2009) reviewed randomised control trials (RCTs) that tested strategies for weight loss maintenance to determine their efficacy. He found only a limited number of interventions were successful in assisting individuals to maintain their initial weight loss after treatment. Furthermore, due to methodological limitations, he warned that the strategies identified as providing a beneficial effect on weight loss maintenance could not be reliably generalised. Turk referred to the maintenance of weight loss as a complex undertaking and suggested the use of a continuous care model to address the potential for relapse (Perri, Sears, & Clark, 1993).

A later systematic review of RCTs for the clinical effectiveness and cost-effectiveness of long-term, MC (e.g., diet and exercise) weight management interventions for adults showed that small weight changes were achieved (Loveman et al., 2011). However, weight regain was common. Of 3,358 identified references, only 12 were deemed suitable for inclusion in the effectiveness review. None were considered appropriate for the cost-effectiveness review. The reviewers reported methodological disparities between the studies that hampered any clear interpretation of the results.

Child and adolescent obesity intervention reviews. Similar to the adult obesity reviews outlined above, the following child and adolescent obesity reviews reported methodological issues and underwhelming weight loss outcomes as the main barriers

to being able to draw conclusions from individual-focused childhood obesity interventions. Examples are listed below.

- A systematic review studied the effectiveness of randomised control trials (RCTs) of dietetic treatment for obese children (Collins, Warren, Neve, McCoy, & Stokes, 2006). The authors of the review cited the general heterogeneity of designs as a barrier to drawing reliable and valid research conclusions. Treatment combinations, outcome measures, and follow-up procedures were reported as too varied to allow comparison.
- A Cochrane Review of interventions for preventing childhood obesity reported evidence of beneficial effects of child obesity programs (Waters et al., 2011). However, the BMI improvements were small (-0.15kg/m2), and the heterogeneity among age groups was unexplained. The authors urged caution in interpreting their findings.
- Individual MC and MD approaches have produced positive weight loss results in adolescents, but are based on short-term time frames (Woolford, Sallinen, Clark, & Freed, 2011). Further research was recommended to assess the longer-term effectiveness of these programs.

Summary. The above reviews indicated a number of barriers confronting the establishment of evidence-based interventions for weight loss. They included: underwhelming weight losses; challenges in identifying strategies that optimise long-term weight loss; high attrition rates; and methodological limitations that hindered drawing firm conclusions from reviews of RCTs. If there were positive effects, they were small and based on short-term studies (shorter than 12 months). Studies with a longer duration of follow-up and more consistent components were recommended.

The results of these reviews, along with increasing obesity prevalence, highlight the importance of developing innovative models for understanding and treating obesity at multiple levels (Lakerveld et al., 2012). The reviews also highlight the importance of taking methodological issues into consideration and establish a case for developing interventions with longer durations (Woolford et al., 2011) and strategies to prevent relapse (Turk et al., 2009).

1.2.5 Proposition Five

Despite recommendations for a MC or MD approach to obesity management, it is not clear how this would work in practice

The human biological predisposition to protect against starvation, combined with the complex nature of contemporary societies and lifestyles that promote over consumption and limit physical activity, could explain why it has been difficult to identify an approach to weight management that is effective in the long term (Seagle, Strain, Makris, & Reeves, 2009). The common assumption that the reasons behind one person's obesity can be universalized to others' obesity could further compromise treatment outcomes. Research to date verifies that a "one size fits all" approach could be considered naïve (Finegood, 2012).

A number of position papers (American Dietetic Association, 2006; House of Commons, 2004; National Health and Medical Research Council, 2012b, 2013; National Institute for Health and Clinical Excellence, 2006) and reviews (Grace, 2011; Kirk, Penney, McHugh, & Sharma, 2012) regard MC interventions as the treatments of choice for obesity management. These components are the same as the components included in lifestyle interventions. They include: the promotion of physical activity, parent training/modelling, behavioural counselling, nutrition education and dietary counselling, and promoting healthy lifestyle habits (American Dietetic Association, 2006). Other researchers (Donini et al., 2009; Morton, 2005) and position papers (American Dietetic Association, 2009; Germann, 2009) advocate MD approaches. MD approaches refer to the multiple professional disciplines that could provide weight management services, rather than the actual intervention component or service.

The recommendations outlined in the most recent Australian clinical guidelines for the management of overweight and obesity (National Health and Medical Research Council, 2013), are for MC and MD approaches for obesity management. These conclusions were based on the work of a number of researchers (DeMattia, Lemont, & Meurer, 2007; Flodgren et al., 2010; Savoye et al., 2005; Tsai & Wadden, 2009). Neither the NHMRC (2013) obesity management guidelines, nor the studies and reviews they based the recommendation on detailed the rudiments of a MCMD approach. A short review of these studies is presented in the next paragraph.

DeMattia et al.'s (2007) review of childhood obesity interventions found a "favourable" maintenance of intervention effects in two childhood obesity studies but neither study identified which components of the study contributed to the effects. Flodgren et al.'s (2010) review of health professionals' roles in contributing to weight loss in patients was unable to draw firm conclusions due to methodological limitations. Moreover, they did not explicate professional roles. Savoye et al. (2005) studied a MC approach to adolescent obesity over two years. The program was regarded as successful. Non-dieting approaches were deemed to have more success than structured dietary approaches. However, further examination of the study identified that the effects of a mentoring and peer support component were unaccounted for in interpreting the results. Participant numbers for the structured dieting group were also small (n=8). Weight changes, while significant, were also small. At one year BMI had reduced from 40.1 to 37.7±2.08, P≤.0001. At two years the BMI was 39.3±2.08, P≤.0001. As this was also a descriptive study, firm conclusions could not be made. Tsai and Wadden (2009) reviewed RCTs of behavioural weight loss interventions in primary care settings. The aim of their study was to determine the effectiveness of different levels in intensity of weight loss interventions delivered by primary care practitioners. Low and moderate intensity exercise interventions did not result in clinically significant results, but two high intensity exercise interventions did. However, the results could not be generalised on such a small sample size. Similarly, the cost, time, and effort required to conduct high intensity interventions was regarded as too prohibitive to justify generalising the results. Overall, the studies on which the NHMRC (2013) referenced their recommendations for a MC and MD approach reported methodological limitations that hindered generalisation of results. Moreover, the studies did not provide any replicable guidance on MC and MD approaches.

To explore the status of MC, MD, and MCMD approaches, I performed a series of EBSCO library searches. At the time of the search (mid-2013), EBSCO literature searches retrieved a reasonable number of references (n=202) for the search terms "multidisciplinary", and "obesity" and notably more (n=614) for "multicomponent" and "obesity." However, an EBSCO search using the terms "multicomponent", "multidisciplinary" and "obesity" retrieved only two references. One was a conference abstract for the current research (Cochrane, Kavanagh, Dick, Hills, & King, 2012) and another a randomised control trial (RCT) examining the effectiveness of a MD family-

based program for childhood obesity (Coppins et al., 2011). The intervention for the latter RCT took a "one size fits all" (prescriptive) approach. As the research study was not tailored to the individual or conducted in a clinical setting it did not inform the current research. These EBSCO searches suggest that when researchers use MC and MD approaches they tend to focus on only one of these terms. This further suggests that a lack of definitional clarity may prevail. For example, if an approach is multidisciplinary, one could assume that it is automatically MC, and vice versa. Donini et al.'s (2009) study, titled "Multidisciplinary Approach to Obesity", further exemplifies this. Their study, despite its title, focuses more on the components of the intervention. The authors also use the terms "multidimensional" and "integrated" instead of "multicomponent".

Overall, based on the complexity of the causative and maintaining factors associated with obesity, as well as a number of recommendations for MC and/or MD approaches, a MCMD approach to obesity management appears to be indicated. However, none of these recommendations provide guidelines on how to execute a combined MC and MD approach. Furthermore, as already exemplified above, and further explicated in Chapter 2, methodological heterogeneity has hindered review studies from generalising the results of MC and MD studies to practice.

1.2.6 Summary of the Propositions

- Economic and technological progress has led to the development of an obesogenic environment. This is a context that human physiology does not appear to be evolved for; ~1.5 billion people worldwide are believed to be overweight or obese (Finucane et al., 2011) and are likely to suffer obesity-related morbidity and disability (Visscher & Seidell, 2001; Wang, McPherson, Marsh, Gortmaker, & Brown, 2011). For the majority of individuals, weight gain is hard to avoid and difficult to reverse (Avenell et al., 2004a; Curioni & Lourenço, 2005; Laddu et al., 2011).
- Although increasing trends in chronic diseases could theoretically have been mitigated if adults had not been exposed to the condition of being overweight or obese (Atlantis et al., 2009), the obesogenic environment has been an inevitable product of technological progress. This obesogenicity is likely to be an enduring feature in our socio-cultural, economic, and political

landscape; it is unlikely to be transformed quickly by population-based interventions (Greener, Douglas, & van Teijlingen, 2010; Millar et al., 2011).

- The "eat less; move more" recommendation for managing obesity does not address the complexity of the issue (Laddu et al., 2011).
- The intractable nature of the obesogenic environment suggests that humans must learn to individually adapt to this complex obesogenic environment if they are to optimise their health. This implies complying with an energy balance that prevents excess fat gain and adopting behaviours and cognitions that optimise health-related outcomes. In adapting to the obesogenic environment, the individual would advantage from understanding the causative and maintaining environmental and intra-psychic factors for his or her obesity. He or she would benefit from being able to address these factors in a way that enables long-term weight maintenance.

1.3 PURPOSE

1.3.1 The Research Problem

A recurrent recommendation in the obesity literature calls for a stronger evidence base for managing obesity (Laddu et al., 2011; National Health and Medical Research Council, 2012b; Parliament of South Australia, 2004; Teixeira, Going, Sardinha, & Lohman, 2005; Yaskin, Toner, & Goldfarb, 2009). Some researchers reason that evidence-based research has not been able to keep pace with rising obesity levels (Barlow, 2007). However, there has been an exponential increase in the number (~58,325) of publications in the obesity field between 1988-2007 (Vioque, Ramos, Navarrete-Muñoz, & García-de-la-Hera, 2010). The large number of publications calls into question any association between insufficient research and obesity prevalence. It may be that relying on evidence-based research to inform practice is not plausible in an environment that is undergoing rapid rates of change (Freshwater, 2005).

The difficulty in developing weight management programs that are effective in the longer term could be due to a myriad of factors. These could include, but are not limited to: a lack of consideration of aetiological factors (Sharma & Padwal, 2010); a focus on individual behaviour change in the absence of interventions addressing environmental changes to support individual changes (Johnson, Kremer, Swinburn, & de Silva-Sanigorski, 2012; Peters, Wyatt, Donahoo, & Hill, 2002); using linear, cause

and effect approaches for a condition that is regarded as complex and multi-systemic (Hamid, 2009; Rutter, 2011); practitioner inability to translate evidence into practice (Fairburn & Cooper, 2011); or poor self-control by the client (Muraven, 2010). Regardless of the reason and given the prevalence of obesity, new approaches and directions for researching and treating obesity are necessary.

An imbalance between energy intake and expenditure is the fundamental cause of obesity. However, this energy imbalance is affected by personal, familial, social, societal, cultural, governmental, and environmental factors that vary not only from person to person but across cultures and countries as well (Ford & Mokdad, 2008). The complexity of these causative and maintaining factors for obesity (Aylott, Brown, Copeland, & Johnson, 2008; Vandenbroeck, Goossens, & Clemens, 2007), at both an individual and environmental level, has likely contributed to the condition of obesity being refractory to treatment (Ross, Kolbash, Cohen, & Skelton, 2010). However, the collective impact of these factors does not appear to be adequately addressed in the obesity intervention literature. I was unable to identify any current "evidence based" weight loss assessments that identify how the overweight or obese person has responded to or interacted with the obesogenic environment to both cause and maintain his or her excess weight. Kirk et al. (2012) have suggested that such information could enable treatments to be tailored to an individual's particular situation.

Determining if a particular treatment is more effective than placebo, or if a treatment achieves statistically significant outcomes in the controlled environment of a research setting, does not necessarily mean these treatment outcomes can be replicated in naturalistic settings (Rutter, 2011). One only has to peruse the various "maps" for managing obesity presented in the Foresight Report (Butland et al., 2007) to fully cognise the full complexity of obesity. One approach is to combine evidence-based research with practice-based evidence (Charman, 2005), and to test evidence-based research in practice settings as part of research programs.

Solving a complex issue like obesity may require "a significant shift in thinking, from linear cause and effect to non-linear system-wide dynamics, and much greater tolerance of uncertainty and unpredictability" (Rutter, 2011, p. 746). As Rutter (2011) explains; "Non-linear systems with feedback, interactions, emergence, compensatory behaviours and small effect sizes are not suited to dichotomous hypothesis testing" (p. 746).

The majority of weight loss approaches used in evidence-based trials has been developed by researchers without consulting practitioners or their overweight and obese clients (Avenell et al., 2004a; Jakicic et al., 2012; Yaskin et al., 2009). They are often implemented as a "one size fits all" approach for research purposes. More consultative and individually tailored approaches can be thwarted by time and cost constraints. Approaches that incorporate more consultation with end-users, and the facility to tailor interventions to individuals, could be worthy of exploration.

Evidence-based trials for obesity tend to focus more on diet, exercise, and behavioural modification strategies (Shaw, Gennat, O'Rourke, & Del Mar, 2009; Shaw, O'Rourke, Del Mar, & Kenardy, 2005). They focus less on client factors or attributes the client brings to the therapeutic setting and process issues such as the working alliance. Examples of client factors include: patient personality style, maturity, ability to engage and participate in treatment and motivation (Lambert, 2010). The relationship between the working alliance and working with client factors and outcomes is well established in psychotherapy (e.g., Falkenström, Granström, & Holmqvist, 2013; Sharf, Primavera, & Diener, 2010; Taber, Leibert, & Agaskar, 2011). This research in psychotherapy can be extrapolated to obesity interventions. For example, it could be surmised that if evidence-based recommendations are imposed on a patient without the practitioner first establishing rapport and assessing the client's opinions, needs and resources, that treatment outcomes may not be optimised. Moreover, professional codes of practice may not be complied with. An example could be "fast medicine" (the vernacular applied to medical consultations shorter than 5-10 minutes). "Fast medicine" challenges and may compromise the primacy of patient care that is promulgated in position statements on medical professionalism (Australian Medical Association, 2010, 2011). Indeed, it may be that current evidence-based approaches for obesity management have not shown marked successes because the therapeutic alliance and client factors were not taken into consideration (de la Rie, Noordenbos, Donker, & Furth, 2006; Falkenström et al., 2013).

We cannot assume that research findings are automatically translated into practice. In fact, an unexplored concern in obesity management is whether practitioners actually consult the obesity research literature (Dietitians Association of Australia, 2012a). A survey of dietetic practice in weight management was conducted

six years after the release of the 2005 Dietetic Association of Australia (DAA) Dietetic Best Practice Weight Management Guidelines for Overweight and Obesity in Adults. The survey found that fewer than half of the respondents had read the DAA guidelines in full. One-third of respondents had only read them in part. More than 65% of the respondents spent at least a quarter of their time working with obesity and more than 45% spent at least half their time working with overweight and obesity. Only one in ten respondents had attended a professional development event that trained him or her in how to properly implement the guidelines (Dietitians Association of Australia, 2012a).

In view of universal emphasis on health professionals using evidence-based practice, more effective methods for ensuring that practitioners access and utilise guidelines is indicated (Fairburn & Cooper, 2011). Certainly, the resources consumed in producing and disseminating evidence-based guidelines warrant the development of measures that would optimise the likelihood that the guidelines are implemented in practice.

An Institute of Medicine (IOM) Report (2001) highlighted that it had taken an average of 17 years for knowledge generated by randomised controlled trials to be applied in practice. While technological advancements since 2001 may have reduced the time it takes the evidence to be applied in practice, the application of evidence-based practice is still considered variable (Shafran et al., 2009). Fox (2003) suggested that failure to translate evidence into practice could be due to an academic cultural belief that research is finished when the paper or book is published. He explains that there also appears to be an implicit assumption that research conclusions naturally flow to practice. Furthermore, Fox believes it is a widely accepted belief for practitioners to be fully responsible in translating evidence into practice, not the researcher or governing body.

Regardless of the reasons impacting the translation of evidence into practice, the issues surrounding the effectiveness or usefulness of evidence-based practice cannot be resolved by criticising practitioners for not using evidence-based practices or by condemning academic research as irrelevant to real-world practice. Fox (2003) believes the way forward is "to re-evaluate the hierarchy of knowledge which situates research evidence in a position superior to other forms of knowing" (p. 82). Fox further states, "The objective is to re-privilege the role of the 'practitioner' in generating useful

knowledge, without rejecting the skills and perspectives of the 'academic' researcher" (p. 82).

Although it would seem germane for practitioners to conduct practice-based evidence and learn from their own real-world practice in a dynamic and responsive way, the majority of practitioners are not trained in the use of practice-based evidence. Moreover, practitioners may be reluctant to use practice-based evidence because professional bodies demand that evidence-based practices (EBP) only be applied in practice (Dietitians Association of Australia, 2008a, 2008b; Psychology Board of Australia, 2012; Q-Comp, 2008). Despite this state of affairs, I believe the lack of adherence to evidence-based guidelines and the complexity of obesity support Fox's (2003) proposal for collaboration between evidence-based practice and practice-based evidence. Combining evidence-based practice with practice-based evidence approaches may even encourage practitioners to refer more regularly to the evidence-based literature.

Despite position papers recommending MC and MD approaches (Dietitians Association of Australia, 2012b; National Health and Medical Research Council, 2013; National Institute for Health and Clinical Excellence, 2006), current healthcare models rely on practitioners working in "silos" (Ham, Dixon, & Brooke, 2012). Additionally, current models of care have not kept pace with rapid changes in technology that have altered how practitioners interact with one another and with their clients (Ham et al., 2012). These issues suggest that new approaches to obesity management would be beneficial.

1.3.2 Main Thematic Concern of This Study

Doctoral research can use action research methodologies to make a contribution to the field of knowledge (Zuber-Skerrit & Perry, 2002). Action research aims to make practical improvements in a field of practice in which there are emergent practice issues or thematic concerns. Thematic concerns are usually generated in a participatory and collaborative manner with a group that is interested in the problem. To clarify thematic concerns for the current action research, the working party (myself and three supervisors) met early in the research program to discuss concerns surrounding the ineffectiveness of current weight management approaches in practice (discussed in Chapter 2). The research interests of my supervisors included obesity, behaviour change, change management, and teamwork. Concerns were raised about the futility

of trying to apply a "one size fits all" and evidence-based approaches developed in research settings, in the real world. The failure of position papers and obesity guidelines to translate their recommendations for MC and/or MD approaches for weight loss into practice was also highlighted as an issue.

We conceded that despite the existence of general recommendations for a MC and/or MD approach, there appeared to be no specific recommendations for such an approach. For example, there were no apparent guidelines on what the approach should look like, how it should be managed, and what barriers would be encountered in using such an approach. Subsequently, we agreed that the development of a MCMD approach for obesity management, using action research methodologies, was a feasible and relevant focus for research efforts and a worthwhile contribution to the field of knowledge. Based on the research problems outlined in Section 1.3.1 above, we also agreed that the approach or model should target both practitioners and clients. We envisioned an approach that would have the flexibility to be adapted to a number of delivery platforms for treating individual clients ranging from multidisciplinary clinics to sole practitioner clinics. To address the concern of approaches to obesity management being created by people who do not engage with the patient, we agreed that the current model would be best informed by a variety of stakeholders. These stakeholders ranged from service providers and researchers to the clients themselves. This research was focused at the individual level because this was the basis of my own practice and experience. An individual focus could also be contained within the constraints of doctoral research. Although this research was focused at the individual level, it was appreciated that the changes required to reverse obesity prevalence would entail a number of ongoing interventions at multiple levels including those of the wider environment.

In summary, agreement about the thematic concern was based on the complexity of causative and maintaining factors for obesity, and the benefit of having a model that incorporated: a broad range of factors (multicomponent); input from a variety of disciplines (multidisciplinary); and, the ability to be tailored to the individual and modified in a responsive way to change over time (action research methodologies).

1.3.3 Method to Address the Thematic Concern

The working party agreed that qualitative research methods would have the flexibility required to design and evolve an approach that is responsive to information

and experience generated by the research process over time. Action research designs are cyclic (Reason & Bradbury, 2008), allowing findings early in the research process to raise new questions which are investigated in subsequent cycles of inquiry. The meta-cycles of inquiry contained in this research are outlined in Table 1.2.

Table 1.2

Cycles of Inquiry and Action.

Cycle of Inquiry or Action	Process
1st Cycle of Inquiry	**Defining the Research Problem** A "one size fits all" approach has not reduced obesity prevalence. The evidence and recommendations from position papers and obesity guidelines have not been successfully translated into practice.
2nd Cycle of Inquiry	**Convergent Interviewing** What do representative stakeholders – practitioners, clients, researchers – have to say?
3rd Cycle of Inquiry	**Observation** What do peer groups say about obesity management? How do peers behave in MD settings? What do clients say about current obesity management approaches and their barriers to weight loss?
4th Cycle of Inquiry	**Literature Review** What does the literature say?
5th Cycle of Inquiry	**Triangulating** the interviews, observations and literature. How does observational data confirm or challenge the data produced by the convergent interviews? Does the literature confirm or challenge the interview data?
6th Cycle of Action	**Putting it all Together**
Further cycles of action	**Research beyond this thesis**

The iterative action research cycles provide data that can be triangulated with the literature and other data sources. This enables a distillation of evidence-based practice and practice-based evidence to inform the approach to obesity management that is developed as part of this research. While the cycles in Table 1.2 are presented as linear, these cycles overlap. Further cycles of implementation are planned, but will be conducted subsequently, and not as part of this thesis. A more comprehensive overview of research design and methodological issues can be found in Chapter 3.

1.4 SIGNIFICANCE, SCOPE AND DEFINITIONS

1.4.1 Significance of This Research

I have been unable to find a framework for a genuine MCMD approach to obesity that tailors interventions to the individual or addresses the complexity of the problem. MCMD interventions have been identified as the treatment of choice for obesity management (American Dietetic Association, 2006, 2009; Donini et al., 2009; Germann, 2009; Grace, 2011; House of Commons, 2004; Kirk et al., 2012; National

Health and Medical Research Council, 2012b; National Institute for Health and Clinical Excellence, 2006).

Current MC and/or MD approaches to obesity management tend to be developed around linear "cause and effect" pathways for obesity and do not always have the inbuilt flexibility required to tailor interventions to the individual. Some researchers suggest the lack of responsiveness in current programs to the needs of individuals may explain the high attrition rates in weight management programs (Tsai & Wadden, 2005; Tsai & Wadden, 2009). Innovations are required to develop more effective approaches. Complex problems like obesity are the problems that persist (Bar-Yam, 2004). They are intractable, referred to as "wicked" (Rittel & Webber, 1973), and require complex solutions. This research aims to contribute a working body of knowledge by identifying a framework for a MCMD approach that can be applied in individual treatment settings and is responsive to the individual client's needs.

Action research methodologies were chosen because they are sensitive to complex adaptive systems (Rutter, 2011, 2012). Action research does more than add further knowledge to the current evidence base. It asks the question, "What can I do about the (obesity) problem?" and allows the data to frame the answer. By addressing a real world problem like obesity, I as the "action researcher," become directly involved in the research as a change agent who wants to improve the situation. This differs from traditional research paradigms in which I would be encouraged to act as a detached scientist to avoid generating biased results (action research has other ways of avoiding bias).

Action research is participative. The research subjects are regarded as co-researchers and generate data based on their actual experiences (Gray, 2009). This approach captures the non-linear complexity of obesity from a real world perspective. The stakeholders or co-researchers are drawn from a broad subject pool to ensure adequate consultation regarding which factors to include in a MCMD approach to obesity management. However, as this is a PhD study, the stakeholders are only involved in data collection. I will be involved in analysis, with guidance from the working party.

To contain the PhD research, it was agreed that I would generate data by:

- interviewing a range of stakeholders identified by a stakeholder analysis;

- conducting observations of health professionals who interact in MD forums;
- documenting feedback from the clients who I work with; and,
- reviewing the literature.

1.4.2 Action Research Addresses Gaps in the Obesity Literature

Specific ways action research methodologies address the gaps in obesity research are outlined below.

- The consultative and participative approach inherent in action research methods ensures that representative stakeholders are given a voice. This provides insight into communication issues among important stakeholders: researcher-practitioner, practitioner-practitioner, researcher-client, practitioner-client (Realpe & Wallace, 2010).
- Through consultations, a clearer understanding of how obesity services are delivered (by practitioners) and received (by clients) in the real world is accessed. Ideas for improvement can then be generated. Because action research methodologies are grounded in local realities, they are useful to end-users, including both the practitioner and the client, in the real world (Herr & Anderson, 2005).
- The role of the working alliance and client factors in optimising obesity management services can be gauged using action research methods. This can be used to ratify the findings produced by quantitative research in these areas.
- There is a gap between evidence-based recommendations and what is implemented in clinical practice (Flodgren et al., 2010). Additionally, some researchers believe that evidence-based guidelines are too broad to be clinically useful (Kirk et al., 2012). A process model like action research can provide a framework that enables both the practitioner and the client to "co-produce treatment" (Realpe & Wallace, 2010) and respond dynamically to issues in real time. This approach is consistent with the concept of practice-based evidence (Parsonson, 2012). Practice-based evidence can be combined with evidence-based practice to facilitate a stronger collaboration between researchers and practitioners.

- Researchers have recommended MCMD approaches to address the complexity of obesity. However, numerous barriers to implementing collaborative approaches to health care outside of research settings have been identified (Orchard, Curran, & Kabene, 2005). For example, recent reports conclude that care is frequently fragmented and that integrated care is more often the exception than the rule (Ham et al., 2012). A working group for the National Heart Lung and Blood Institute (NHBLI) (2005) stated that a paradigm shift is required to enable professionals such as doctors to move from an acute care model for obesity treatment to a patient-centred model where the patient plays an integral role. The NHBLI working group referred to healthcare providers' failure to identify, initiate, or intensify treatment for overweight or obese people as "clinical inertia" and suggested that this resulted in poor health outcomes for the overweight and obese client group. The advantage of action research methodologies is that they can engage stakeholders in an exploration of delivery shortcomings (Alexander et al., 2007). They also provide a process for generating solutions for team management and strategies for practitioners to more actively involve the client in his or her own treatment.

1.4.3 Terminology

An implicit assumption in the title of this thesis, "A Multicomponent Multidisciplinary Approach to Obesity Management," is that the ultimate end-user of the approach in development will be a person who wants to lose weight. The term "patient" has been traditionally used in disciplines such as medicine and is the common reference to the recipient of health services in medical clinics, hospitals and allied health services. However, other terminologies such as "client," "consumer," "user" (Shevell, 2009), and "customer," "service user" (McLaughlin, 2009), have also emerged. McLaughlin (2009), after an exhaustive analysis of most appellations, concludes that regardless of the label applied, it is descriptive of the relationship and not the person and questions.

In the absence of any universally satisfactory term for the people who would be the end-users of a MCMD approach to obesity management, I elected to use the terms "patient" and "client" interchangeably. The term I use will reflect the preference of the

research, researcher, profession, or source of information being discussed. In my own practice I use the word "client."

1.4.4 Scope of Research

The current research will aim to make a substantial inroad into the development of a responsive and dynamic MCMD approach to obesity management. The intention is that the approach could be used reflexively by practitioners for optimising client weight loss outcomes, or could even be used as a framework by obesity researchers. As the qualitative data collected in this current research will be significant, to meet doctoral guidelines, only a portion of the data will be used to address the thematic concern. An inherent assumption of action research is that the action research cycles never end. The expected practical outcome will be a preliminary model for a MCMD approach to obesity management. I hope that this body of work will invite ongoing research and the development of a more comprehensive model that can be tested in a naturalistic environment at a later date.

1.5 WHAT I HAVE LEARNED

My understanding of obesity and obesity management, and therefore the focus of this research study, changed through the successive action research cycles of this research project. Appendix A provides a more comprehensive summary of the iterative changes in the proposed title, purpose, research design, and research questions or thematic concerns (as documented in the initial research proposal, stage 2, confirmation, and final thesis documents). However, I have provided a brief summary of the learning developments at the end of each chapter, and at other relevant points throughout the thesis.

Within the first 3 months of the thesis, based on what I learned through a preliminary literature review and consultation with my working party, I modified the title and focus of the research. My initial proposal was to develop a weight management program that drew strategies from dietetics, psychology, and exercise physiology and to compare online and offline versions. However, I came to view this approach as non-consultative and simply another version of a "one size fits all" management method. I learned that a consultative approach that drew on the opinions and knowledge of end-users including clients and practitioners may offer a more effective solution. To achieve this, instead of combining qualitative and quantitative

methodologies that compared the effectiveness of approaches to managing obesity, I elected to use only qualitative approaches. I chose action research because it is a process paradigm that is predicated on fine-tuning the approach until the processes work. This flexibility was seen as a strong advantage for the development of a new or modified approach to obesity management using participatory processes. A participatory approach would allow me to access how professionals perform, and what clients want from professionals. This would help me to develop an instrument or model that worked for them. It was on this basis that I modified the title to "A Multicomponent Approach to Obesity Management".

Based on my own lack of professional effectiveness in managing obesity as a psychologist-dietitian, the preliminary literature review led me to understand why "thinkers" in the field (Hamid, 2009; Rutter, 2012) are proposing that an evidence base founded on simplistic models of cause and effect (e.g., effect of a particular diet) may not advance the field of obesity research. As highlighted in the Foresight Map, research aimed at "tackling obesities" (Finegood, Merth, & Rutter, 2010) develops frameworks that take into account the total system impacting a person's obesity.

The preliminary literature review introduced me to the concept of the obesogenic environment. As indicated by models like the Foresight Map (Butland et al., 2007) and Swinburn et al.'s (2011) framework of obesity determinants, a substantial level of intervention is required to impact obesity trends, both individually and at a population level. Pathways to obesity vary among people as do the factors that maintain obesity or prevent weight loss. My intention at this point was to develop a framework for obesity management that is more representative of the complexity of a client's situation. The contribution of qualitative research processes is that they "contend that truth and meaning do not exist in some external world, but are constructed through peoples' interactions with the world" (Gray, 2009, p. 201).

Chapter 2: Literature Review

2.1 INTRODUCTION TO CHAPTER 2

Literature reviews are not always included at the beginning of an action research thesis, but are rather incorporated where relevant throughout the thesis (Dick, 1993). In Chapter 1, I used the literature to justify the propositions on which the research was predicated and to introduce the thematic concern. In Chapter 2, I refer to the literature in providing a brief recount of the impact of the current obesity and to summarise further research that substantiates the thematic concerns underpinning this inquiry. The research that is summarised refers to the general effectiveness of: variants of individual weight management interventions not mentioned in Chapter 1; health promotion strategies; health care models; and more recent thinking about participatory and multi-level approaches to obesity management. The material that is presented supports a MC, MD, and multi-systemic approach to weight management.

2.2 CURRENT OBESITY CRISIS

Medical advances and reductions in factors like cigarette smoking have led to a decrease in premature deaths from stroke, heart disease, cancers, and respiratory diseases (Ham et al., 2012). However, this improvement in longevity has also turned previously life-threatening conditions, such as some forms of cancer and heart disease, into chronic conditions that people now live with for longer periods of time. Exacerbating this situation has been an increasing prevalence of overweight and obesity over the last thirty years (refer to Section 1.2.1). The combination of people living with chronic disease while being burdened with overweight and obesity has led to an increased potential for multiple physical morbidities (refer to Section 1.2.3) and a subsequent predisposition to mental health problems (Zhao et al., 2011). Although we are living longer, we are not necessarily living healthier and happier lives.

2.3 LEARNING FROM DIFFERENT APPROACHES TO OBESITY MANAGEMENT

Obesity introduces an increased medical, social, psychological, and economic burden for those who suffer from it (Jackson-Leach & Lobstein, 2006; Wang et al., 2011). The reported limitations of current individual strategies for reversing this

"wicked" problem (refer to the brief summary in Section 1.2.4 above) supported the feasibility of attempting to approach obesity management differently (e.g., Lakerveld et al., 2012). In trying to identify potentially effective or innovative approaches for obesity management, I considered it practical to explore what has already been done. My review of the literature identified that current research analysing the causes and treatment of obesity has ranged from broad population or environmental approaches (Aylott et al., 2008; Flegal et al., 2010; House of Commons, 2004; Parliament of South Australia, 2004; Swinburn et al., 1999; Visscher & Seidell, 2001; World Health Organisation, 2004), to approaches that focused on the individual (Enwald & Huotari, 2010; Galani & Schneider, 2007). According to some researchers, stakeholder groups differ in their selection of preferred foci for addressing the obesity crisis (Greener et al., 2010). Policy makers and health professionals have been said to focus on social and environmental explanations of obesity, and overweight individuals on personal issues of motivation and their situation. These different foci will be explored in the next section.

Note:

An EBSCO literature search failed to identify action research studies aimed at developing interventions for use in clinical settings. There were a limited number of studies using action research methodologies to develop obesity interventions, but one was aimed at helping families to manage obesity within the family context (Davison, Jurkowski, Li, Kranz, & Lawson, 2013), another aimed at schools (Goh et al., 2009) and another at a community level (Filbert, Chesser, Hawley, & St. Romain, 2009). The EBSCO search indicated that the majority of action research studies relating to obesity were in the area of prevention for childhood obesity or aimed at the community level.

As there were limited action research studies on obesity that were relevant to the current inquiry, the following reviews and research studies used different methodologies to action research. Therefore, most of the criticisms made by researchers in relation to methodological limitations do not apply to action research, which depends on other sources of research rigour.

Only a limited number of reviews are reported due to the size of the literature. The intention is to not only justify the suitability of an individual focus in clinical

settings for the current inquiry, but also to learn from these reviews and show the multiple pathways that are available for the management of this complex condition of obesity.

2.3.1 The Effectiveness of Individual Weight Loss Interventions

In Section 1.2.4 above (Proposition Four), I summarised reviews of adult and childhood obesity interventions. The summary showed that in contrast to the ongoing commercial focus on dieting to achieve weight loss, extensive literature reviews offered scant support for a causal relationship between "diets" and enduring weight loss or health benefits (Mann et al., 2007; Tsai & Wadden, 2005; Tsai & Wadden, 2009; Turk et al., 2009). Research on individual interventions for weight management that further supported this conclusion is presented below.

Lifestyle Approaches. Lifestyle interventions for the treatment of obesity have produced more positive outcomes than dieting approaches (Galani & Schneider, 2007). Lifestyle programs are tailored to the individual's risk profile and general needs. Lifestyle interventions generally target multi-component interventions for weight management including: dietary counselling, exercise training, psychological counselling, the promotion of healthy lifestyle habits and behaviour change (Kirk et al., 2012). In promoting a lifestyle approach to obesity management, Kirk et al. cautioned that one cannot focus on the individual without considering the broader environment. However, they admitted that there is limited research on weight loss interventions that combine individual lifestyle areas and broader environmental factors. Firstly, the cost and complexity of such interventions, they say, has prevented such research. Secondly, they highlight that there has been no agreement on what should be measured. Kirk et al.'s research highlights the importance of the complementary roles of individual and environmental interventions for weight management. It seems logical that once an individual loses weight, it would be important to explore ways in which their environment could support them in maintaining the lifestyle changes required for ongoing weight maintenance.

Psychological approaches. A Cochrane Review (Shaw et al., 2005) assessed the effects of psychological interventions for overweight and obesity in facilitating weight loss. Similar to the individual interventions elaborated in Section 1.2.4 above, this study also reported methodological shortcomings for the 36 RCTs they reviewed. The

heterogeneity of these studies in terms of participants, interventions, and study duration, duration of sessions, psychological components, outcomes, settings, and frequency of clinical contact made drawing comparisons difficult. Despite the heterogeneity of these studies, however, it was clear that behavioural interventions resulted in greater weight loss than cognitive strategies did. Notwithstanding, none of the studies continued longer than 12 months. This review supported other studies (Anderson et al., 2009) which found that increasing the intensity of the components, or adding more components, improved the effectiveness of the intervention.

Bariatric surgery. A number of reviews (Karmali et al., 2010; Maggard et al., 2005) and position statements (International Diabetes Federation, 2011; National Health and Medical Research Council, 2003a; National Institute for Health and Clinical Excellence, 2006; Zimmet et al., 2011) supported the use of bariatric surgery as an appropriate treatment for moderately (BMI>30) to severely (BMI>35) obese individuals who are at high risk of morbidity and mortality, and who have not achieved recommended treatment targets with lifestyle and medical therapies. These recommendations are based on research confirming the success of bariatric surgery in achieving more substantial and permanent weight loss outcomes than conventional forms of treatment that incorporate diet and exercise (Colquitt, Picot, Loveman, & Clegg, 2009; Laddu et al., 2011; Maggard et al., 2005).

Although bariatric surgery has been a successful treatment method, it is unrealistic to depend solely on surgical treatments to manage "globesity." Bariatric surgery is not accessible to everyone and is costly. In addition, bariatric surgery patients are not exempt from integrated management issues or post-surgical psychological challenges (Colquitt et al., 2009; Sarwer et al., 2008; Sogg & Gorman, 2008). Some researchers also believe specific standards and guidelines, established by definitive studies, for the MD care of patients seeking or undergoing bariatric surgery, are vague and have not been enforced consistently or successfully (Apovian et al., 2009).

Worksite wellness reviews. Worksite wellness programs are being used more frequently to help lower healthcare costs and increase productivity in the workplace. A systematic review of the effectiveness of worksite wellness programs using nutrition and physical activity components to address overweight and obesity in the workplace showed "modest improvements" (net loss of 1.25kgs) in employee weight at 6-12

month follow-up sessions (Anderson et al., 2009). Anderson et al. also cited methodological issues as undermining the generalisability of these results: for example, ethnicity was not reported; age was not reported in 70% of the data; and socioeconomic data (including blue collar versus white collar) was not reported in 40% of the studies. Prevalence of obesity was also not reported in the studies Anderson et al. reviewed. Furthermore, the size of the workplace was not reported in 64% of the studies these authors reviewed. Although some studies attempted to report on the contribution of environmental and policy components, differences between comparison conditions and the outcomes that each study reported made it difficult for Anderson et al. to draw general conclusions about the contribution of these components.

Summarising individual approaches. Diet, exercise, and behaviour modification continue to be centrally featured as accepted approaches for weight management (National Health and Medical Research Council, 2012b, 2013; Rössner, Hammarstrand, Hemmingsson, Neovius, & Johansson, 2008; Stubbs et al., 2011; World Health Organisation, 2004) despite the greater effectiveness of bariatric surgery in moderately to severely obese populations. Diet, exercise, and behavioural interventions offer the opportunity for multiple positive health outcomes. These health outcomes could range from improved nutritional status to a level of mental and physical fitness that a "fast surgery" approach alone does not promote.

The reviews of weight loss interventions discussed above cited methodological limitations as the reason the research outcomes could not be generalised to practice. Although action research uses other sources of rigour, the findings of the reviews on individual approaches to weight management highlighted the importance of paying attention to methodological issues (discussed in Chapter 3).

Learning outcomes. Reviews of lifestyle interventions, psychological approaches, and bariatric surgery and workplace wellness programs informed the current inquiry in a number of ways. The relative success of lifestyle interventions supported multicomponent (MC) approaches, tailoring programs to the individual and taking the environment into account. The psychological approaches emphasised the strength of behavioural components over cognitive strategies, and showed how increasing the intensity and number (a reflection of the complexity of obesity) of the components had the potential to optimise results. The various limitations identified in

researching workplace wellness programs endorsed my decision to focus the current inquiry into individual clinical settings. Finally, the cost and limited availability of bariatric surgery procedures meant that such approaches were an impractical option on which to conduct research. This further supported the current inquiry into individual approaches in clinical settings.

To complete the picture on the range of approaches to obesity management and further justify the individual approach this inquiry is taking, the next section elaborates broad-scale approaches to obesity management.

2.3.2 Broad-Scale Approaches to Obesity Management.

Population and environmental approaches. Broader-based strategies aimed at curbing "globesity," such as the information-dissemination strategies common to health promotion, have been reported as having limited power in affecting health-related behaviour change (Laddu et al., 2011; National Health and Medical Research Council, 2012b). For example, a review of community-based interventions and social marketing campaigns addressing obesity found little evidence for the effectiveness of these broader scale approaches (Walls, Peeters, Proietto, & McNeil, 2011). Policymakers and health professionals questioned the efficacy of broad scale approaches due to the dependency on political and public support of such approaches (Greener et al., 2010). A number of researchers attributed the ineffectiveness of broad scale approaches to government policies focusing health promotion strategies on the individual, rather than on the broader socio-economic and political issues that have impacted the obesogenic environment (Alvaro et al., 2011). Obesity experts elaborated further on this individual focus, suggesting that the government "blames the individual" for obesity as a strategy to avoid funding obesity management programs (Brownell et al., 2010; Stanton, 2006). Furthermore, these experts described blaming the individual for not being able to modify his or her environment to facilitate weight loss as misguided. They explained that the individual was simply responding to the obesogenic environment that encouraged the overconsumption of food and a sedentary lifestyle. Swinburn et al. (2011) endorsed this viewpoint and believed that the obesogenic environment was supported by government policies that must be reversed in order to solve the "wicked" problem of obesity.

Although the general consensus was that broad scale approaches to obesity management were ineffective, there have been some exceptions. A community-based

obesity prevention intervention using a capacity-building approach conducted with Australian adolescents over three years resulted in an average weight loss of three-quarters of a kilogram (Millar et al., 2011). Although the individual average weight loss appeared relatively small, this can be translated into a notable change in obesity prevalence at the population level. A recommendation from this study was that obesity prevention strategies should target the home environment, including family practices, as well as individual behaviours (Johnson et al., 2012).

Position papers and obesity guidelines. Numerous national and international obesity reports, position papers, guidelines, and public health strategic plans (American Dietetic Association, 2012; Dietitians Association of Australia, 2008a; Institute for Clinical Systems Improvement, 2011; Lau, 2007; National Health and Medical Research Council, 2003a, 2012b, 2013; National Heart Lung and Blood Institute, 2004; National Institute for Health and Clinical Excellence, 2006; Tsigos et al., 2008) confirmed global awareness of the threat that obesity poses to health and wellbeing. However, based on obesity prevalence data (refer to Proposition One in Section 1.2.1 above) these documents have not been translated into actions that have reduced the prevalence of obesity. For example, Australia has produced three national taskforce plans for the management of obesity (National Health and Medical Research Council, 1997; National Obesity Taskforce, 2003; National Preventative Health Taskforce, 2009). None of these plans have been realised. Obesity experts suggested that it was more difficult for governments to implement policy and regulatory interventions than program and education-based interventions (James & Rigby, 2010). Other experts have challenged, "national government rhetoric is undermining its own strategy documents" (Dixon & Broom, 2007, p. 177). These experts proposed that it was hypocritical for governments to initiate guidelines, reports, and policies that stress both societal and individual causes of obesity, when they avoided regulating the food and beverage industry by blaming the individual (Brownell et al., 2010; Dixon & Broom, 2007; Harris et al., 2009; Stanton, 2011).

Summarising broad scale approaches. Ulijaszek (2007) proposed that the contextual diversity in which obesity has evolved and the complexity of the environment in which it persists indicated that a significant reversal in obesity prevalence was not likely in the near future. In support of Ulijaszek's prediction, global systemic policy changes have not yet been able to halt or significantly reduce obesity

trends. These factors, in combination with government impotence in regulating the food and beverage industry, and the cost of broad scale approaches, supported the efficacy of focusing the current inquiry on individual interventions for people who are already overweight and obese (Walls et al., 2011). Individual approaches were considered to be more achievable within the time and financial constraints imposed by PhD research, my background as a practitioner, and my desire to improve my own practice. Endeavouring to develop a MCMD approach was also consistent with the recommendations of position papers and obesity guidelines (e.g., National Health and Medical Research Council, 2013).

Potential solutions. Alvaro et al. (2011) used the notions of "edge of chaos" from complexity theory and the concept of "internal contradictions" from critical theory, to identify opportunities for changing government policies to curb the obesity epidemic. The "edge of chaos" referred to the critical point obesity has reached, both in terms of its sheer magnitude as a problem and the concomitant economic burden it has created for systems such as the government. These researchers suggested that when such a critical point is reached, there is a possibility for substantial system change. The "internal contradictions" emerge when governments, for example, award grants for obesity research, but do nothing to alter policies that support the fast food industry that helped to create the problem in the first place (James & Rigby, 2010). According to Alvaro et al. (2011), these disparities ignite public awareness and increase pressure to change.

Alvaro et al. (2011) believed that both complexity theory and critical theory indicate that the time for change is near. However, the authors admitted to these theories failing to explain how to effectively alter the obesogenic environment. A number of thinkers and researchers in the obesity field believed that collective movements were required to exploit opportunities for change within the systems we live in such as the government, workplaces, and the built environment (Brownson, Haire-Joshu, & Luke, 2006; Finegood, Karanfil, & Matteson, 2008; Gortmaker et al., 2011). These researchers further suggested that collective action would need to be mobilised both from within and outside the health sector for full impact if policies were to support initiatives to alter the obesogenic environment (Alvaro et al., 2011; Butland et al., 2007). Ideas for policies ranged from placing a higher tax on "junk food" (Walls et al., 2011) to implementing health and wellness programs in schools

and the workplace (Katz et al., 2005). The "systems thinking" promoted by various researchers to address obesity (Finegood, 2012; Gortmaker et al., 2011) suggested two starting points: the first starting point was a debate on how current social and economic policies prioritise the economic system over the health of the population; the second was the mobilisation of multiple sectors or parts of the larger system to form a movement aimed at addressing obesity. The message being conveyed by various obesity "champions" was to develop proactive solutions (not reactive responses) for the problem of obesity that focused both on the promotion of health and prevention of obesity.

Alvaro et al. (2011) were proponents of encouraging health practitioners to get out of their "silos" and become "activists for change." Other thinkers in the field also supported this recommendation (Kreindler, Dowd, Dana Star, & Gottschalk, 2012; McNair, 2005). As the model in development is MC and multidisciplinary (MD), it has the potential to act as a platform that inspires "users" to work together in actualising positive changes to reduce obesity prevalence.

Learning outcomes. I learned that obesity is an extremely complex condition to treat and likely requires extensive multilevel interventions ranging from individual to population levels to reverse current obesity trends. This learning highlighted the importance of incorporating processes to optimise how professionals can work together. It also highlighted the benefit of ultimately aligning individual approaches with environmental approaches in achieving maximum impact.

2.3.3 Health Care Models

Our health care systems were historically predicated on acute conditions in which the patient played a passive role. The health care system was not designed to meet the needs of chronic conditions like obesity, which require MD treatment and self-management approaches (Institute of Medicine, 2001; Wagner et al., 2001). Surveys of primary health care services in Australia, Canada, France, Germany, the Netherlands, New Zealand, the United Kingdom, and the United States have indicated the need for more innovative systems to improve health outcomes for people with complex and chronic conditions (Schoen, Osborn, How, Doty, & Peugh, 2009). People with chronic conditions grapple with the physical, psychological, and social pressures imposed by their conditions and, according to Wagner et al. (2001) need integrated care models to help them to self-manage their illnesses. The Institute of Medicine

(2001) released a report recommending a redesign of the American health care system. The report indicated the health care system was not only failing to deliver outcomes, but that it was also harming users. This 'quality chasm' in care was attributed to the increasing complexity in health care and the inability in current systems to translate medical science and technological advances, as well as research findings into practice.

Solutions. Dissatisfaction with the current health system has spawned new ways of conceptualising our approach to health. As detailed below, these include MCMD approaches, systems thinking, redesign of health systems, and co-production with end-users. These recommendations have the potential to inform the current inquiry.

2.3.4 Multicomponent Multidisciplinary Approaches

Defining the different terms relevant to MCMD research. It has generally been acknowledged that obesity is caused by multi-factorial factors that encompass the individual, interpersonal relationships, the community, and the general environment (Aylott et al., 2008; Vandenbroeck et al., 2007). As a result, there has been a growing trend towards MD research (Bammer, 2005; Crabtree, Miller, & Stange, 2001; Kelly & Melnyk, 2008) and MD interventions in the area of obesity (Buclin-Thiébaud, Pataky, Bruchez, & Golay, 2010; Carnier et al., 2010; Ross et al., 2010). The advantage of the MD approach has been its ability to bring experts from a variety of disciplines together to address thematic concerns or research questions from a number of different points of view (Park, 2008). The literature highlighted a number of different terms that have been applied to research and interventions that are MD in nature: these included intradisciplinary, interdisciplinary, and transdisciplinary (Park, 2008); collaborative (Denis & Lomas, 2003); integrated and MC (refer to last paragraph Section 1.1). These terms can be defined as follows:

- **Intradisciplinary** refers to individuals in the same discipline working together (Park, 2008).
- **Multidisciplinary** refers to individuals from different disciplines working on a project or case independently but reporting their findings or work to a key person such as a team leader (Park, 2008). According to Bammer (2005), multidisciplinarity does not require researchers to leave their disciplines. Individual disciplines bring their own theories and methods to a problem, and attempt to integrate different understandings.

- **Interdisciplinary** refers to different disciplines working together in problem solving (Park, 2008). Bammer (2005) suggested that when adopting an interdisciplinary approach, the researchers should look beyond their own disciplines and work with other disciplines to pursue new understandings.
- **Transdisciplinary** refers to a number of disciplines working together to create new ways of thinking. Austin, Park & Goble (2008) referred to this method as the development of "discipline-transcending concepts, terminology and methods" (p. 557) that create new and improved conceptual frameworks (Bammer, 2005) that are underpinned by epistemological shifts. **Cross-disciplinarity** appears to be synonymous with transdisciplinary definitions (Huang, Drewnosksi, Kumanyika, & Glass, 2009). Both cross-disciplinarity and transdisciplinarity can be viewed as a union of interdisciplinary initiatives.
- **Collaborative research** refers to "a deliberate set of interactions and processes designed specifically to bring together those who study societal problems and issues (researchers) with those who act on or within those societal problems and issues (decision-makers, practitioners, citizens)" (Denis & Lomas, 2003, p. S2:1).

The current research is MC and MD. The term **multicomponent** can refer to a combination of modalities including physical activity, nutrition education, dietary advice, behavioural management, and counselling (American Dietetic Association, 2006). Alternatively, a different level of components could refer to providers, clients, the community, the government, and the environment. The term **multidisciplinary** was included to reflect the likelihood that a number of professionals would also be involved in the approach (e.g., Woolford et al., 2011). The multiple disciplines could include, but would not be limited to: medical practitioners, psychologists, dietitians, exercise physiologists and exercise scientists, podiatrists, nurses, physiotherapists, occupational therapists, social workers, and professionals from complementary medicine such as naturopaths and acupuncturists. Both the MC and MD terms reflect the complex and heterogeneous nature of the condition of obesity. Ultimately, the research process will determine the nature of the components and the disciplines involved.

MCMD research. The most recent Australian clinical practice guidelines for the management of overweight and obesity (National Health and Medical Research Council, 2013) recommended MC interventions delivered through MD care. This has been a consistent recommendation by a number of position papers (American Dietetic Association, 2006; House of Commons, 2004; National Institute for Health and Clinical Excellence, 2006) and reviews of weight loss interventions (Grace, 2011; Kirk et al., 2012). However, as previously mentioned in Section 1.2.5 above, research into MC and/or MD approaches has reported methodological limitations including: small sample sizes (e.g., n=39), the absence of a control group (Buclin-Thiébaud et al., 2010), and need for longer term follow-up (Woolford et al., 2011). Systematic reviews that inform MC and/or MD approaches have been hampered by: differences in types and durations of interventions, and lengths of follow-up; lack of generalisability to countries other than the country the study was conducted in; potential bias and allegiance effects (Loveman et al., 2011); lack of a comparison group, small sample sizes, high attrition rates, use of convenient homogenous samples, and lack of a theoretical framework to guide interventions (Kelly & Melnyk, 2008). Notwithstanding, a number of interventions have succeeded in short-term weight loss; more research into strategies to improve long-term weight loss maintenance is required (Loveman et al., 2011). As noted above, most of these methodological limitations do not apply to action research, the methodology being used for the current research. However, they emphasise the challenges that can be encountered in developing and researching MCMD approaches.

Literature reviews on MCMD approaches and team work have already provided notions as to what is important in developing such an approach. A Cochrane Collaboration that investigated what interventions would improve the management of diabetes in primary care, outpatient and community settings (Renders et al., 2001) recommended comprehensive and multifaceted interventions with the following components:

- provider-focused components (e.g., provider education, including to nurses);
- process components (e.g. electronic tracking and reminder systems, implementing measures of the process of care, modifying information management systems); and,

- patient-focused factors (e.g. patient knowledge, skills and confidence in managing their condition).

Render et al.'s (2001) research also emphasised that targeting provider behaviour alone did not alter patient outcomes unless patient behaviour was also targeted.

A position paper on teamwork in health care (Oandasan et al., 2006) stated that team work and therefore the quality of patient care, improved when:

- team members were trained in how to work together; there were legislative frameworks that broke down the "silo" mentality; and funding models encouraged collaboration;
- team members adhered to processes that optimised team performance (e.g. clear purpose, open communication, coordination, policies, and procedures);
- the team had a workable administrative structure and leadership;
- patients and their families were involved in decision making, trained in how to participate in a team and made aware of each professional's role;
- all team members actively participated; and,
- the over-arching government policies were consistent with the team ethos and culture.

Learning outcomes. These recommendations reflect the myriad factors that could be considered in developing a MCMD approach and how important it is that the ultimate model be situated within a broader, supportive political environment. It is clearly beyond the constraints of doctoral research to meet every recommendation. However, having a wider awareness informs the developmental process.

After doing this second literature review (the first was done for confirmation, 12 months after I commenced the PhD), I expanded my conceptualisation of what the components could be comprised of. Originally I was thinking of the content or intervention components referred to in most of the studies – a nutrition, exercise and behavioural component. However, I began to identify multiple components after reading Renders et al. (2001) and Oandasan et al. (2006) – practitioner components, client components, process components, and content components. This broader conceptualisation of components was not reflected in the other studies.

2.3.5 A Systems Approach

A limitation of current approaches to obesity has been our inability to integrate the multiple factors that impact on a person and their weight (Hamid, 2009). This may include the environment, government policies, the individual's psychology, their social situation, their health, their education, and their financial status. Integrated operating systems offer the capacity to interface the multi-systemic complexity of people, with the multi-systemic complexity of obesity. A systems approach suits complex conditions because it addresses the interactions and interdependencies among systems (Senge, Kleiner, Roberts, Ross, & Smith, 1994).

Wagner et al. (2001) developed a guide to chronic care improvement based on a systems approach that addressed most parts of the health care system rather than implementing isolated strategies. The Chronic Care Model (CCM) promoted effective self-management support. It recommended linking clients and their families into community resources for further support with managing their chronic conditions. The model took this route because traditional approaches that had focused solely on providing knowledge did not translate into health-related behaviour change. Among the components of the CCM model were strategies that assisted clients in setting goals for improving management of their own conditions, and in identifying and solving barriers to management.

A Kansas primary care unit applied Wagner's Chronic Care Model (CCM) to an obese population (Ely et al., 2008). The primary care physicians used a two-armed randomised trial comparing a CCM for obesity care with standard care over a six-month period. They believed that the model would help overcome barriers for the treatment of obesity in primary care settings. These barriers included practitioners reporting time constraints, as well as a lack of resources and knowledge about obesity. They trained the GPs in obesity and its management. The clients were given "self-management" support in the form of telephone counselling by Master's level counsellors. The client was described, in the study, as setting the agenda for the counselling sessions. However, sessions were limited to certain topics. At the six-month follow-up, only half of the clients were still participating. The CCM group lost more weight than the control group. However, the weight loss differences were not significantly or clinically different at three months. There was no significant change in fruit or vegetable consumption or physical activity level. Ely et al. (2008) attributed

the weak outcomes to participants wanting more intensive interventions. The need for increased intensity in interventions to yield more effective results has been a common finding in a number of studies mentioned, but these types of changes raise funding issues (Anderson et al., 2009; Loveman et al., 2011). Overall, the poor results of the application of the CCM model in practice demonstrated the difficulty in implementing such a complex model with total integrity "in the real world." The intervention was reasonably prescriptive and this would have likely limited its application. The CCM model also assumed that comprehensive changes were made to six areas of healthcare (discussed in Chapter 5, Section 5.5.2). This was a difficult feat to achieve in a small primary care setting.

The Foresight Map (Butland et al., 2007) was another systems approach applied to obesity management. The map was constructed to provide a system-wide view of the key determinants of obesity and their inter-relationships. Although the complexity of the "map" has thwarted its implementation, the report offered valuable information for the current research. These ideas are listed below.

- "The complexity and interrelationships of the obesity system described in the report make a compelling case for the futility of isolated initiatives" (p. 10).
- "A substantial degree of intervention is required to affect an impact on the rising trend in obesity" (p. 12).

Learning outcomes. The latter point made by Butland et al. (2007) could explain why Ely et al.'s (2008) implementation of the CCM model was ineffective. Notwithstanding, based on the literature, system approaches appeared likely to provide the most realistic, practical, and relevant frameworks to address the complexity of obesity. However, as cautioned by Butland et al. (2007), garnering a government mandate to effect the range of solutions required to implement policies to target obesity at individual, local, national, and global levels, will be a challenge. Again, I am becoming progressively more aware that developing a MCMD approach for the individual management of obesity is simply a starting point for a small component of a much broader systemic approach. The challenge will be to develop a MCMD approach that links into the broader system. In the meantime, even from the perspective of the individual practitioner (or client), if the system effects are understood one is better able to take them into account. For instance, even though one

may not be able to influence the larger system, one could devise, for example, behavioural interventions that might otherwise be invisible but important systems effects.

2.4 HEALTHCARE SOLUTIONS

2.4.1 Redesigning the Healthcare System

The Institute of Medicine report (IOM, 2001) discussed above argued for changes to the health care system by emphasising the fact that more than 40% of people with chronic conditions have more than one such condition, thus requiring improved care coordination. The report proposed six core goals for healthcare: to be safe, effective, patient-centred, timely, efficient, and equitable. They established ten rules for the redesign of twenty-first century health care delivery systems (p. 3-4). They include:

1. Care is based on continuous healing relationships.
2. Care is customized according to patient needs and values.
3. The client is the source of control.
4. Knowledge is shared. Information flows freely.
5. Decision making is evidence-based.
6. Safety is a system property.
7. Transparency is necessary.
8. Needs are anticipated.
9. Waste is continuously decreased.
10. Cooperation and collaboration among practitioners is a priority.

The rules are consistent with a client-focused and self-management approach, and are germane to the current inquiry.

2.4.2 Co-Designing and Coproducing With Customers or Clients.

In order to better meet the needs of end-users, consumers of systems are increasingly becoming included in the design of products and services (Beyer & Holtzblatt, 1998; Goodwin, 2009). This approach is referred to as co-production, and has become a concept used in the development of health care services (Ham et al.,

2012; Realpe & Wallace, 2010). When clients and providers partner to coproduce better approaches to health care, these collaborations automatically incorporate a focus on equality and shared decision-making. The end-users, be they providers or patients, are not treated as passive recipients of treatment models and care. According to Realpe and Wallace (2010), by using this approach, providers moved from "fixers to facilitators" with a re-distribution of power towards the client; the client became a "contributor." This approach was consistent with the approaches discussed above (Institute of Medicine, 2001; Petry, Barry, Pietrzak, & Wagner, 2008). This approach was also sympathetic with action research methodologies.

2.4.3 Helping Teams to Work More Effectively.

In Australia, Medicare established a service for patients with chronic health conditions called a GP Team Management Plan (Department of Health and Aging, 2013). The process commences with the GP being able to refer the patient with the chronic health condition to at least two allied health professionals for a total of five sessions in a calendar year. The GP receives a Medicare payment for conducting the service. Medicare also provides the patient with a rebate of around $50AUD for each of the five sessions the patient accesses with the allied health professional to whom they are referred. It is assumed that the patient is managed by the GP. It is further assumed that this health care team accomplishes the following tasks: accesses the patient's perspective on his or her condition; assists the patient in setting goals and problem solving for improved self-management; and assists in the implementation of suitable interventions that are monitored and fine-tuned. Furthermore, it is assumed that the participating practitioners ensure ongoing follow-up and evaluation. However, my personal experience and feedback received from psychology and dietetic colleagues who have also participated in this program, has been that, in most situations, the patient is managed by a number of discrete health professionals who do not often communicate or interact with one another in providing multi-disciplinary treatment for the client. An evaluation of the first version of GP Team Management Plan conducted by Wilkinson et al. (2003), which was then referred to as Enhanced Primary Care, reported similar findings. This evaluation identified that the logistics of getting three or more professionals together mitigated case conferencing. Furthermore, GPs were found to have limited understanding of the roles of the allied health providers, and the providers did not understand the requirements of the GP.

Similar programs to the Medicare-rebated GP Team Management Plan were delivered in other countries. A report by the King's Fund (Ham et al., 2012) in the UK revealed that in 2009-2010 only 11% of clients reported having been aware of even having a care plan. This lack of awareness existed despite evidence that showed that clients valued the opportunity to make decisions about their own care over automatically receiving standard packages that are determined by the provider. Both the client-provider relationship and health care outcomes were optimised when the members of this relationship were informed, and as a result, when the members actively participated in the process (Institute of Medicine, 2001; Wagner et al., 2001). As outlined in various self-management guidelines (Department of Health, 2011; McGowan, 2012) patients would benefit from having the information, skills, confidence and motivation to interact with their health care team and work with their treatment program. Similarly, practitioners require knowledge of the patient as well as the time, expertise, and resources to provide proactive, tailored, and effective treatments for the patient. Wagner et al. (2001) identified "productive practitioner-patient interactions that provide evidence-based clinical care and self-management" (p. 68) as being extremely difficult to achieve in practice. This difficulty highlighted the importance of redesigning health delivery systems to meet the needs of people with chronic and comorbid conditions. The King's Fund report further highlighted a weakness of current primary care models as being the fact that primary care practices in the community are not well coordinated with medical teams in hospitals, or with other specialist groups in the community. However, the report also agreed that integrated care would only be achieved if barriers between the different services could be broken down. In relation to specific services, the King's Fund report suggested a reassignment of roles in MD teams. One such shift could involve delegating more work to nurses so that doctors can focus on diagnosis, case conceptualisation, and team management. However, in Australia we have a "workforce mal-distribution" issue. Hospitals employ many more nurses than doctors, but in private practice, the situation is reversed. Disciplinary perspectives are expanded upon in Chapter 4.

2.4.4 Bridging Evidence-Based Practice With Practice-Based Evidence

As mentioned in Chapter 1 (Section 1.3.1), entities such as Medicare (Department of Health and Ageing, 2010) and professional organisations within the health field (Australian Psychological Society, 2010; Dietitians Association of

Australia, 2012a; Q-Comp, 2008) require that health professionals in Australia to only implement evidence-based practices (EBP) in treating their clients. The following statement made by the Psychology Board of Australia to psychologists exemplifies this stance:

"Psychologists who abandon evidence-based interventions and use discredited treatments, or interventions that have no reputable evidence, put the public at risk of harm. In addition, such actions can significantly reduce the confidence of the public to seek assistance for problems in the future, and create a long-term loss of confidence in psychology. If practices are not represented in mainstream psychology textbooks and the associated specialist scientific literature, then a registration board will be concerned and may take action" (Psychology Board of Australia, 2012).

These recommendations for using evidence-based practice are predicated on the assumption that empirical research determines best practice (Department of Health and Ageing, 2010). However, these research-to-practice recommendations have sparked considerable debate. Examples of discussions about this topic are listed below.

- The endorsement of evidence-based practices assumes that the practitioner applying the practice in naturalistic settings does so in a manner consistent with methods used in the research setting. It is also the assumption that a certain treatment that works in the research setting can be delivered as effectively in the clinical practice settings (Charman, 2005).
- Fairburn and Cooper (2011) contend that there are no evidence-based methods for training practitioners how to translate evidence-based treatments into practice.
- There is a significant possibility that a practitioner's client will differ markedly from the subjects used in a research study on a particular approach; this likelihood brings the efficacy of relying on evidence-based approaches into question (Parsonson, 2012). Dick (2007) further cautions that the, "currently fashionable 'evidence-based practice' can underestimate or overlook how complex and therefore unpredictable people are, both individually and collectively" (p. 411).
- The results of studies based on large samples may be statistically significant without being clinically relevant (Parsonson, 2012).

- In certain disciplines, certain modalities or approaches have been recommended as the preferred evidence-based treatments for particular conditions largely because they are the most thoroughly researched (Australian Psychological Society, 2010; Duncan, Miller, & Sparks, 2004; Q-Comp, 2008). For example, funding bodies (Australian Psychological Society, 2010; Department of Health and Ageing, 2010; Q-Comp, 2008) tend to favour evidence-based therapies which perpetuates use of certain treatment modalities. Charman (2005) believes this approach ignores the possibility that certain treatments may not be "best practice" for certain individuals. As pointed out by Roth (2006), the fact that a particular treatment has a stronger research base does not necessarily mean that it is the most effective treatment for a particular condition. There is also the underlying possibility that it is not the actual therapy that is contributing to positive outcomes, but rather the common factors such as the therapeutic relationship, expectations and attribution of outcome (Duncan et al., 2004). Charman (2005) warns that a concern with recommending so-called evidence-based treatments is that it may cause practitioners to feel compelled to adopt treatment approaches which they have no allegiance to, and which may not be the right fit for their particular client.
- Evidence based treatments do not necessarily incorporate other aspects of treatment such as screening, intake, assessment, and diagnosis (Department of Health and Ageing, 2010). As a result, some professional bodies acknowledge that research findings are not sufficient for practice (Munten, Cox, Garretsen, & Bongers, 2010).

To address the challenges detailed above about the use of evidence-based therapy, the Psychological Association (APA) has offered a more tempered approach to selecting the appropriate intervention for the client. The APA described evidence-based practice in psychology as the integration of quality empirical evidence and expert opinion with client characteristics, socio-cultural context, and preferences. The APA also emphasised that evidence-based practice in psychology incorporates the application of empirically supported principles of psychological assessment, case formulation, and therapeutic relationship, as well as intervention. To ensure that psychological practice is clinically relevant, the APA encouraged both researchers and

practitioners to work together. Furthermore, the APA admitted that one cannot assume that interventions that have not undergone research scrutiny are ineffective. Similarly, nurses have been warned that evidence from the literature is only one part of implementing evidence-based practice (ISNA Bulletin, 2012). They have been encouraged to conceptualise clinical expertise, and the patient as components of evidence-based practice. The Indiana State Nurses Association (ISNA) mentioned that as a practitioner moves through the stages from "novice" to "expert," his or her ability to use critical thinking to inform practice will be more relied upon.

The information presented above confirmed that there appears to be support to augment evidence-based practice with practice-based evidence (Charman, 2005; Fox, 2003; Parsonson, 2012). Regardless, the issues surrounding the effectiveness or usefulness of evidence-based practice cannot be resolved by criticising practitioners for not using evidence-based practices or by condemning academic research as irrelevant to real-world practice. Fox (2003) believes that there is a need "to re-evaluate the hierarchy of knowledge which situates research evidence in a position superior to other forms of knowing" (p. 82). He acknowledges the importance of evidence-based research and practice-based evidence, suggesting, "The objective is to re-privilege the role of the 'practitioner' in generating useful knowledge, without rejecting the skills and perspectives of the 'academic' researcher" (p. 82).

2.5 SUMMARY AND IMPLICATIONS

Sections of Chapter 1 (1.2.4) and Chapter 2 (2.3.1) summarised the effectiveness of individual, including MCMD approaches, and broad scale approaches to obesity management. Small weight losses were reported in the short-term in a limited number of individual studies (e.g., Galani & Schneider, 2007; Loveman et al., 2011). However, the majority of reviews concluded that a longer-term follow-up was required (e.g., Mann et al., 2007) and that methodological issues compromised the value of the reviews in being able to establish a firm evidence base (e.g., Yaskin et al., 2009). As the methodologies reviewed were not action research, (action research uses different forms of rigour), these findings cannot be directly applied to the current research. However, the recommendations emphasised the importance of addressing issues of rigour. Broad scale approaches were similarly deemed to be unsuccessful in reversing obesity trends, with only a few exceptions (e.g., Millar et al., 2011). Notwithstanding,

the complexity and cost of implementing population-based approaches supported the individual approach taken by the current doctoral research.

An investigation of position papers and obesity guidelines supported a MCMD approach. A MCMD approach offers the potential advantage of providing a framework that encourages different disciplines to work together with the client to address the problem of obesity. The recommendations from reviews of MCMD approaches (e.g., Renders et al., 2001) and position papers on teamwork in healthcare (e.g., Oandasan et al., 2006) also had potential use for this inquiry. Innovations such as "systems thinking," coproduction, and facilitating collaboration between evidence-based research and practice-based evidence also offered important viewpoints for consideration in the development of a MCMD model for weight management.

In summary, there are complications in establishing a firm evidence base for non-surgical approaches to obesity management at an individual or population level. A recurrent recommendation is that MCMD approaches be tailored to the individual. However, I was unable to source a commercially available MCMD approach to obesity management that is responsive to the needs of both client and practitioner, and that addresses reported barriers to treatment. It may be that a paradigm shift is required wherein both the health provider and the individual are targeted to improve the effective management of obesity (co-production). To address this gap in the research literature, the current inquiry will endeavour to develop a responsive and dynamic MCMD approach to obesity management that can be used reflexively by practitioners and clients.

Learning outcomes. The cumulative review of the literature in both Chapters 1 and 2, highlighted the enormity of the obesity literature and the complexity of obesity and its management. It also highlighted that despite the extensiveness of the literature, intervention research on obesity has been plagued with methodological issues that have hindered the establishment of a firm evidence base. As I suspected, although MCMD approaches were recommended, my literature searches did not identify any specific guidelines on how practitioners could apply such an approach. Given the complexity of obesity and the obesogenic environment in which it persists, my focus moved from specific research questions to a general thematic concern. Furthermore, I acknowledged that my former practice focused on the client as the "cause and solution" for obesity management. By this stage of my research I more strongly

acknowledged the role of the practitioner, the practitioner-client relationship and the environment in obesity management. On this basis I changed the title of my thesis to include the word MD. The title became: "A Multicomponent Multidisciplinary Approach to Obesity Management." As detailed above, my conceptualisation of what the components may comprise changed significantly.

It was clear that action research methodologies, particularly convergent interviewing, would be useful in accessing stakeholder views in co-designing potential approaches to obesity management. Prior to this research program I had not considered "systems thinking" in relation to obesity. However, the more I recognised the complexity of obesity, the more I could understand the efficacy of a systems approach. At this stage I was not sure how I could apply it to the current inquiry, but was satisfied that developing a MCMD approach using participatory action research methodologies was the best way to contribute to knowledge while improving my own practice.

Chapter 3: Research Design

Analysis Notes

Subjectivity

As an action researcher, I acknowledge that my analysis and interpretation of the data were subjective. My conclusions have been influenced by my many years of practice as both a dietitian and psychologist working with obesity and eating issues, as well as by my own theoretical engagement. The interaction between the information provided by stakeholders and my interpretation of that material during data analysis endowed the data with more meaning.

Never-ending cycles

The implicit assumption in using an action research methodology was that the cycles of inquiry would always be incomplete. Therefore, this thesis research study was commenced with the knowledge that the MCMD approach that was developed would be fine-tuned in subsequent post-doctoral research, during further implementation.

3.1 METHODOLOGY

This chapter outlines the inquiry processes used to respond to the thematic concern. Since the primary methodology was one of action research, the actual research design was emergent throughout the thesis research program (Reason & Bradbury, 2008). The contents of Chapter 3 are outlined below.

- An overview of action research and justification for using it
- The study design including data collection methods and rigour
- Procedures and timeline
- Approaches to data analysis and interpretation

3.1.1 What is Action Research (AR)?

Action research is a family of methodological practices of living inquiry (Reason & Bradbury, 2008) that integrate both action and research (Dick, 2000). It can be traced back to the work of Kurt Lewin (Lewin, 1946). Lewin believed that research "must

begin with a situation or a problem rather than a theory, include the people involved in a collaborative investigation, and incorporate action designed to address the matters under investigation" (Conrad & Campbell, 2008, p. 249).

The cyclical, dynamic and collaborative features of action research have caused it to become a more frequently used methodology for investigations into health, welfare and social science (Holloway, 2005; Murphy & Dingwall, 2003; Reason & Bradbury, 2008; Stringer & Genat, 2004). A well-known iterative representation of action research cycles, depicted in Figure 3.1 and used for this study, was developed by Stephen Kemmis and his colleagues (Kemmis & McTaggart, 1988). The underlying premise is that critical reflection of the action informs ongoing plans for what to do next. These cycles can be sequential multiple cycles or nested (cycles within cycles within cycles) (B. Dick, 2000). The cycles can also range from the entire research program, to the moment by moment actions in the research process (discussed further in Section 3.2.2 below).

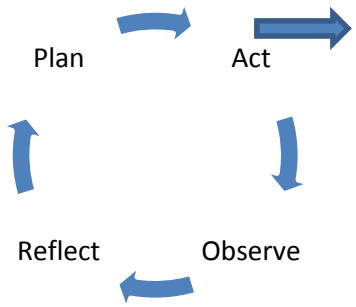

Figure 3.1. Action research cycle.

The present study identified the main problems or thematic concerns to be the intractability of obesity and a lack of clarity in how MCMD approaches could be more effectively applied in practice (plan). The process of action research, which is ongoing, involved the collection of data (action) through interviews and the subsequent analysis of that data in light of theoretical (literature review) and practical considerations (observation). Using this process, the problem is reassessed (reflection), possible solutions are generated, and another plan of action is generated (planning) and implemented (further action). The process continues until the problem is resolved, or the need for ongoing resolution is agreed upon. The understanding is that in a changing world, this process will not stop. Although the data was not in the form of direct "practice action" performed during this thesis research (implementation will be post-

doctoral), the data was based on the stakeholders' reflections and sense making of their own practice in obesity management or their personal weight loss experiences.

Stringer and Dwyer (2005) explained that action research allows the investigator to enter messy, real-world situations (the "action") to acquire a rich database of knowledge not captured by summary quantitative statistics. Action researchers describe the "research" component of action research methodology as being tied to the desire to produce robust results that can be applied to real-world situations (Hindle, Checkland, Mumford, & Worthington, 1995). Stringer and Dwyer (2005) explained that the aim of action research is to solve practical problems and improve the human condition. As a "practice of participation" (Hindle et al., 1995, p. 1), action research engages participants, who are subjects in positivist research or subjects of interventions, as co-researchers (Reason & Bradbury, 2008). The purpose, initially, is not to change the person you are working with, but rather to change with them.

Action research is differentiated from general professional practice and everyday problem-solving by its emphasis on scientific study (Saelens & Liu, 2007). While the problem is systematically studied through iterations of action and reflection (practice-based evidence), the process is informed by theoretical considerations (evidence-based practice). O'Brien (2001) refers to action research as "learning by doing." Unlike traditional or positivist research methods that focus on rational thinking, Hughes (2008) asserted that action research methodologies emphasise emotions, personal experience, and action. Action researchers believe this focus on subjective data can often provide deeper insight into the problem being examined (Jepsen & Rodwell, 2008). However, qualitative action research does not usually analyse causal relationships between measurable variables.

3.1.2 Why I Used Action Research

Action research offered the dual opportunity of professional development and contribution to one's field of endeavour through the application of practice-based evidence.

Action research is regarded as a research methodology suitable for higher degree students, such as myself, who wish to concurrently improve their own work practice (Conrad & Campbell, 2008) and pursue higher degree research (Dick, 2002). Action research recognises that theory can be generated through practice (practice-based evidence) and that this theory is beneficial if applied in the service of achieving

positive social change (Brydon-Miller, Greenwood, & Maguire, 2003). Stringer and Genat (2004) described the systematic processes of action research as providing tools that optimise not just service planning but program development, evaluation, and continuous improvement as well. These features were germane to the current inquiry.

The rate of change in the health area is inconsistent with the requirement for only using evidence-based practice (Freshwater, 2005).

Professionals in the health and social sciences are confronted with constant change in the face of new technologies, new scientific discoveries, new training programs, and changing regulations at the professional and governmental levels. These rapid changes create a gap between theory and practice and highlight the difficulty of translating extra-therapeutic changes into practice (Conrad & Campbell, 2008; O'Brien, 2001). Furthermore, shifting boundaries between medical and allied health professionals and the increasing complexity of tasks used to deliver effective health care are changing patients' experience of health care (Oandasan et al., 2006). A solution that has arisen to address these changes is to derive theory from practice using action research methods because action research methods are more responsive to the emerging needs of a situation (McIntyre, 2008). Deriving theory from practice allows practitioners to question traditional research models (Brydon-Miller et al., 2003) as well as their own practice. Another advantage of action research is that it is performed by practitioners directly involved in the clinical situation; the inquiry is performed in collaboration with the client, allowing practice-generated theories and practice-based evidence to evolve in routine practice (Freshwater, 2005). As outlined in Chapter 2 (Section 2.4.4), action research does not ignore evidence-based practice; it builds a bridge between evidence-based practice and practice-based evidence.

Action research methods allowed me to address socio-cultural problems that are not easily investigated using positivist paradigms and to overcome some of the limitations of the biomedical model.

Although the biomedical model has made substantial contributions to researchers' understanding and treatment of health-related issues, it has been unsuccessful in effectively ameliorating the complex condition of obesity (King, 2007). Stringer and Genat (2004) believe the biomedical model positions the practitioner as "the expert." They explain that this approach assumes that the practitioner has the knowledge, power, and expertise to make judgements about health problems, and to diagnose and recommend solutions. In contrast, action research is

based on the premise that human systems are likely better understood and changed if members of the system are involved in the inquiry process itself (Brydon-Miller et al., 2003). As Hughes (2008) pointed out, "We cannot frame the health professional, the intervention and the client as independent and separate entities. They are mutually interdependent and participating actors in a larger system" (p. 231).

Accordingly, action research methodology, in allowing the action researcher to enter the real world of both practitioners and their clients, can assist researchers in learning how to develop practices that make sense within the clients' everyday lives (Stringer & Genat, 2004). The advantage of action researchers immersing themselves in the world of the client, is that they can better understand health issues by looking holistically at interdependencies between individuals, their environment, and the collective beliefs of stakeholders, as well as bio-medical factors (Dawson-Hughes, Harris, & Ceglia, 2008).

Action researchers are trained to engage a degree of chaos, uncertainty, and complexity, a seemingly clear advantage when it comes to obesity research. There is no onus on the action researcher to provide the solutions to stakeholders' problems in advance. Instead, there is a supposition in action research that stakeholders know their own lives, issues, and potential solutions better than the investigator does. Furthermore, the cyclic nature of action research allows for trial and error. Investigators are free to attempt solutions, note results, and offer a fresh approach if necessary. This cyclic nature offers a means of making subtle amendments toward a more ideal treatment model.

Action research has greater flexibility to deal with multiple disciplines and different approaches.

Brydon-Miller et al. (2003) contended that messy, real-life situations and dynamic environments cannot be addressed by one discipline of knowledge or one methodology alone. Real-life situations, they say, require collaboration among disciplines and non-academic partners. Traditional, positivist approaches to research provide a clearly defined role for the researcher: he or she implements and controls the study as well as its participating subjects (Stringer & Genat, 2004). In action research, inquirers can adopt multiple roles, which may change over the course of the research process. These roles may include: researcher, practitioner, leader, catalyst, teacher, listener, synthesiser, facilitator, designer, observer, reporter, and participant (O'Brien,

2001). In action research, both the investigator and the participants are derived from the stakeholder pool. This pool can include individuals affected by the issue, such as clients, practitioners, and caregivers, as well as those who have influence over the issue, such as funding bodies, policy makers, administrators, and even researchers.

Dick (2000) describes flexible attributes of action research as non-exclusion of quantitative approaches and inclusion of a variety of research methods (Waterman, Tillen, Dickson, & de Koning, 2001). In healthcare, participatory processes that access the perceptions of stakeholders and experimental research inform one another (Hughes, 2008). For example, while the current study design is qualitative, it is expected that the outcome of the investigation will provide a platform through which quantitative research can be conducted at a later time.

Action research includes participatory processes that involve all stakeholders as members of a larger system

Hughes (2008) emphasises that the health practitioner, individual client, and the intervention are mutually interdependent components of a larger system. As such, they are ideally approached using participative paradigms. Garnering the insights and interpretations of individuals directly involved with the specific health issue that is being addressed ensures that contextually relevant information informs the proposed solutions (de Koning & Martin, 1996). The inclusion of clients alongside professionals breeds trust and establishes joint ownership of the problem and its solutions.

The level of participation in action research methodologies is flexible and can be conformed to the needs of the situation (Dick, 2002). Dick stated that participation can vary: from authentic partnerships between researchers and the researched, to no apparent relationship between the two. This flexibility allows the methodology to match the emerging requirements of the circumstances being researched.

Action research offers transparency of allegiance.

As a research paradigm, action research challenges the positivist approach to research, which requires research to be objective and value-free in order to be credible (Brydon-Miller et al., 2003). Action researchers deny researcher neutrality and openly acknowledge their bias to stakeholders involved in the investigation (O'Brien, 2001). They acknowledge that the most active researcher is often the person who has a large stake in resolving the problematic situation.

3.2 RESEARCH DESIGN

This study modified the design for an action research study developed by Stringer & Genat (2004) and used it as a framework to detail the activities required to systematically investigate the thematic concern (see Table 3.1). Consistent with other action research approaches, the sequence in this study was cyclical, moving iteratively through the plan, act, observe, and reflect cycles.

3.2.1 Research Design: Getting Started

The revision of action, in light of later experience, is a hallmark of action research methodologies. Accordingly, the final methodological processes adopted to mine data for the current inquiry emerged from data generated by the previous action research cycles.

The planning stages evolved through ongoing iterations of the action research cycle (see Figure 3.2). Research design changes were documented at 3 months post-candidature, 1 year post-candidature, and in the final thesis (3 years post-candidature). As previously noted, Appendix A summarises the documented evolution of the research methodologies, as well as the title for the study, the overall purpose, and the research questions and thematic concerns.

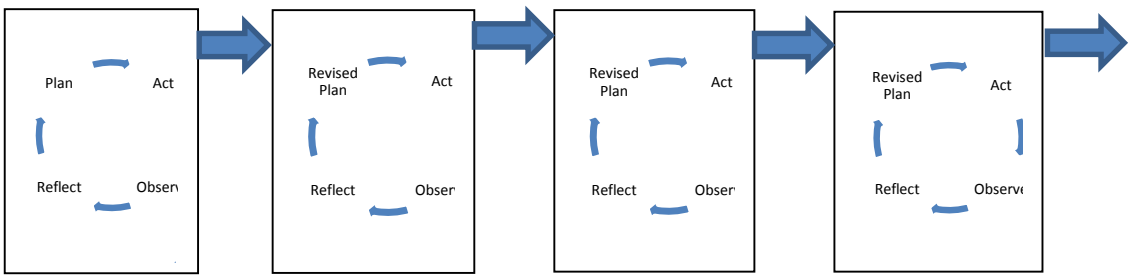

Figure 3.2. Action research cycles for documenting the current research

3.2.1.1 Establishing the Research Platform and Thematic Concern

The current research materialised from my own frustration as a practitioner in assisting clients to make the changes that would assist them to lose and maintain weight. My professional experience and a preliminary literature review suggested that tailoring weight management interventions to individuals and trialling new approaches held some merit.

Table 3.1

Action Research Sequence. Adapted from Action Research in Health, by E. Stringer, and W. Genat, p. 6. Copyright 2004 by Pearson Education, Inc., Upper Saddle River, New Jersey 07458.

RESEARCH DESIGN	DATA COLLECTION	DATA ANALYSIS	REPORTING	ACTION
GETTING STARTED Initial proposal Identifying a thematic concern Literature Review Stakeholder Sampling Data sources Ethical considerations Rigour	CAPTURING STAKEHOLDER EXPERIENCES & PERSPECTIVES Interviewing Observing Field notes Reviewing literature	MAKING SENSE OF DATA Analysing epiphanies and illuminative experiences Categorising and coding Enhancing analysis - triangulation Co-creating frameworks	WRITING Reports Stage 2/ Confirmation/ Final thesis Presentations Journal Articles / Case studies	CREATING SOLUTIONS Action/Case plans Assessment algorithms Assessment tools & processes Care management Problem solving Evaluation & continuous improvement Professional development Strategic planning Future directions/ Ongoing research

As detailed by the changes in the working title and purpose of this research outlined in Appendix A, my research focus underwent iterative modifications until 1 year post-candidature. I initially expected to conduct both quantitative and qualitative research. However, this focus moved to an intention to use a qualitative and exploratory action research methodology called Systems Methodology (SSM) by 3 months post-candidature. This intention to use only qualitative methodologies was maintained 12 months post-candidature, but the methodology was changed to action research. The working party agreed that qualitative methods would likely

be the most useful methodology to capture the level of complexity associated with managing obesity.

As my research progressed and I came to fully understand the complexity of obesity, my inquiry moved from pursuing a series of research questions (detailed in Appendix A) to addressing a thematic concern (discussed in Section 1.2.2 above). This concern related to: the ineffectiveness of current weight loss approaches in the face of escalating obesity prevalence; the challenge faced by practitioners in applying research guidelines in practice; and the absence of guidelines on how a MCMD approach for weight management could be applied.

In establishing the scope of the inquiry, it was decided that material would be drawn from a representative group of stakeholders using the data mining methods referred to above. This information would be triangulated with the various data sources to enhance rigour.

3.2.1.2 Literature Review

Qualitative research often utilizes the literature minimally in the early stages of conducting a study (Conrad & Campbell, 2008). Creswell (2005) explained that in qualitative research, "the literature justifies the research problem, but it does not lead to the questions asked in the study" (p. 46). Unlike quantitative research, qualitative research is grounded in the perspectives of stakeholder experiences and viewpoints rather than in concepts and analyses gathered from the literature (Stringer & Genat, 2004). According to Silverman (2000), the literature review should combine knowledge and critical thought in qualitative research, and should be predominantly written after the data analysis is completed. Stringer and Dwyer (2005) suggest that the literature review can become more focused as the issues and perspectives emerge through data collection. The review can then further support the information being generated from the various forms of methodological inquiry being used.

Silverman (2000) refers to the literature as a secondary source of data. Stringer and Dwyer (2005) reiterate this view, referring to the literature as a source of perspective, rather than as a source of truth or facts. Stringer and Dwyer suggest that the emergent processes of inquiry and the gathering of "local" information form the basis of a qualitative research study; they argue that basing qualitative research around propositions or conclusions drawn from the literature weakens the study.

Notwithstanding, as identified by Stringer and Dwyer (2005), there are advantages to performing a preliminary literature review in qualitative research: the review identified previous related studies and current recommendations; it both justified and refined the research problem and provided insight into appropriate methodologies; and, it also suggested approaches for researching the problem. Possessing preliminary knowledge also allowed me to identify the most germane thematic concerns (Driedger, Gallois, Sanders, & Santesso, 2006), assisted me in facilitating the flow and content of data (Rao & Perry, 2007), and raised my confidence when interviewing research subjects (Riege & Nair, 2004).

3.2.1.3 Stakeholders and Stakeholder Sampling

Once the thematic concern was confirmed, the working party agreed that stakeholders could include researchers, policy makers and practitioners in the field, as well as overweight and obese individuals pursuing weight loss. The procedure used for identifying participants for convergent interviewing was derived from a stakeholder analysis described by Dick (1990). This process is elaborated upon in the procedure section below (see Section 3.3.2.1). The process provided a method for identifying diverse perspectives in relation to the thematic concern.

3.2.1.4 Data Sources

Stakeholder perspectives, experiences and events were captured through interviews, observations and field notes, and literature reviews. These processes are elaborated below.

3.2.1.5 Ethical Considerations

All research involving human participation at Queensland University of Technology (QUT) was undertaken in accordance with the National Statement on Ethical Conduct in Human Research issued by the National Health and Medical Research Council (NHMRC) (2007). Accordingly, an application was made for ethical clearance of the current research and approved on 22.07.10, Approval No. 1000000514.

Ethical considerations are important in action research because the research takes place in real-world situations with stakeholders involved in the situation (O'Brien, 2001). To meet ethical requirements, stakeholders who were interviewed were provided with a description of the proposed research; asked to sign a consent

form for participation; and also offered the opportunity to withdraw from the study at any time (refer to Appendix B and C).

An ethics variation to include additional data sources was requested and approved on 06.09.10, Approval No. 1000000514. This included approval to include two additional sources of data – the field research notes or reflections researcher takes during the course of the research and de-identified clinical data from client files.

3.2.1.6 Issues Relating to Rigour

The NHMRC (2007) ethical guidelines for qualitative studies state that rigour in qualitative research should not be determined by sample size. The NHMRC guidelines assert that when sampling is performed correctly, the theoretical basis of the research and the research objectives should determine sample size. Convergent interviewing determined sample size by using the principle of saturation; sampling is terminated when no new information is forthcoming. This process for defining sample size will be elaborated upon in Section 3.3.2.1.

The NHMRC (2007) ethical guidelines also state that quality and credibility of data collection and analysis should be used to assess rigour in qualitative research. This contrasts with the validity and reliability requirements for establishing rigour in quantitative research. Lincoln and Guba (1985) believe that no objective measure of validity exists in qualitative research and propose that qualitative researchers establish the trustworthiness of the research. Trustworthiness, according to Lincoln and Guba, can be assessed by establishing the credibility, transferability, dependability, and confirmability of the research. The next section will discuss how current research addressed these factors.

Credibility

Liamputtong (2009) compares credibility to internal validity and explains that credibility refers to whether or not the research findings are trustworthy. Credibility was enhanced in this research by using a research team with extensive experience in the obesity and health-related behaviour change fields, from both the practitioner and research viewpoints. It was also improved by having an expert in qualitative research methodologies act as one of the key researchers. Credibility was also addressed by using processes that reduce researcher bias. These included:

- using sources of data provided by stakeholders, not by the research team;

- drawing data sourced in convergent interviews from a diverse group to ensure that data interpretation included as many perspectives as possible (Stringer & Genat, 2004);
- subjecting data to triangulation. Triangulation involved accessing multiple sources of data and using different methods (e.g., interviews, field notes, observation) to corroborate and elaborate on the thematic concern and to generate potential solutions (Stringer & Dwyer, 2005); and,
- employing the same terminology and language used by participants to ensure that participant perspectives and experiences were clearly and genuinely reflected and interpreted.

Member checking, wherein the participants of a study critically analyse the data and its findings, is often recommended in qualitative research. This process ensures that the research sufficiently represents the perspectives and experiences of the participants (Stringer & Genat, 2004). Due to time constraints and other considerations, member checking was not conducted as part of this research. Morse (1998) believes member checking conflates researcher and participant roles. In qualitative research, member checking can actually hinder the overlap of data collection and data analysis. For example, in convergent interviews, member checking makes it difficult for later interviews to benefit fully from knowledge developed in earlier interviews. Convergent interviewing therefore incorporates alternative protections against researcher bias.

Due to the high degree of personal interpretation in the reporting of observations, the internal validity of observational data is often questioned (Gray, 2009). However, Gray believes that when research-practitioners have a significant understanding of the subject matter, as they did in this research, they are more likely to present a truer reflection of events.

Generalizability and Transferability

Both generalisability and transferability are comparable to external validity (Liamputtong, 2009). Generalisability refers to the extension of research findings to the general population or to different contexts (Colorado State University, 2013). Transferability refers to the other situations and contexts where one believes the research findings are most likely to be relevant and applicable (Morgan, 2009).

Morgan explains that specific justification is required to make research transferable because we are going beyond our research parameters. However, the terms generalisability and transferability are not mutually exclusive (Colorado State University, 2013). Generalisability, to an extent, depends on the transferability of research findings. Definition differences aside, Gummesson (2000), an action research expert who initially believed that it was important to be able to generalise results, has begun to question the meaning of generalisability. Gummesson suggests that although one cannot automatically assume that results from a small sample cannot form the basis of a generalisation, neither can one assume that the results of large statistical analyses can automatically be considered generalisable. He commented that emerging new data challenges the generalisations being made, thereby questioning the relevance of making generalisations. Gummesson resolves his debate about generalisability by promoting an ongoing search for knowledge and the validation of theories in action. He champions the notion that one should accept that he or she is using the best information of the moment, rather than focusing on the generalisation of information.

The ability to establish whether the research findings can be generalised beyond the current study has been posited as a limitation of convergent interviewing (Rao & Perry, 2007). However, Williams and Lewis (2005) suggest that the repetitive nature of the convergent interviewing process, and its tight structure might be considered a form of generalisation of the findings. As previously discussed in the overview of action research, I also used the working party's expert opinions about the data and the triangulation of emerging themes with other data sources as forms of external validity or of generalisability. Comparing my results and the emerging interpretation dialectically to the relevant literature allowed me to check if my results applied elsewhere.

External validity becomes problematic when observational data are developed in unique situations that hinder generalisation to other situations. To address this issue, I attended specific MD meetings on multiple occasions over the course of the doctoral program, and I was able to attend comparable events when meetings were not possible. My long history as a weight management practitioner also incorporated implicit long-term observation. Over time I was able to build up an historical, comparative perspective. The observational data was used as a secondary data source to supplement

interview data. This provided another source of evidence that increased the credibility of the conclusions I drew.

Dependability

Dependability can be compared to reliability, basically ensuring that the research findings are reflective of the data and processes that the findings are said to originate from (Liamputtong, 2009). The dependability of the current qualitative research was achieved by establishing an audit trail that clearly defined the research processes and by ensuring that the processes were open to scrutiny (Murphy & Dingwall, 2003; Seale, 1999). This transparency of process was established by the ethical approval process, the requirements of regular supervision and documentation throughout the PhD research, and the adherence to university policy.

Adopting consistent processes also achieves reliability (Kirk & Miller, 1986). Reliability was attained in the current study by conforming to the structured process for convergent interviewing. Gathering multiple convergent and divergent interpretations of interviewee perspectives contributed to both reliability and validity (Williams & Lewis, 2005). Triangulating the data sources also contributed to reliability as well as validity (Rao & Perry, 2003). However, it is acknowledged that while triangulation reduces the likelihood of error, it does not eliminate it completely (Gray, 2009).

Interviews, as well as a number of observation sessions, were audiotaped and transcribed verbatim by one English-speaking professional transcriber. Audio-taped observations reduced the likelihood of human error (Gray, 2009; Stringer & Dwyer, 2005). During other observations, I was able to either type or write out verbally expressed information at the time the information was given; this increased the reliability of the information that was used.

Confirmability

Confirmability relates to neutrality and clearly demonstrates that the research findings and interpretations are derived from the data (Liamputtong, 2009). Lincoln and Guba (1985) state that the major technique for establishing confirmability is the confirmability audit or audit trail. However, they also recommend triangulation and the maintenance of a reflexive journal. I have attempted to address confirmability by reflexively summarising what I learned at various stages of the inquiry. This process makes the changes in my thinking, in response to the data, more transparent. The

transcripts have been saved securely on a university hard drive as well as an Internet cloud, and are therefore accessible for auditing purposes. Hard copies of the transcripts have also been stored. These measures enhanced the trustworthiness of the research.

Stringer and Genat (2004) claim that **pragmatic validity** is the most powerful form of validity in action research. Pragmatic validity occurs when the research produces outcomes that participants can apply in real life. The application of solutions to the thematic concern will confirm that the concepts and solutions that emerged from the research were successful in solving real world problems. However, due to the time constraints of doctoral research, pragmatic validity will be suggested as a future direction. During this thesis research I have used other sources of potential disconfirmation to address subjectivity and to strengthen the claims made during analysis and interpretation of the data. Examples include making a vigorous attempt to triangulate the interview data with observational data and the literature. The search for disconfirming evidence is a powerful source of validity, and the lack of outcomes is a powerful disconfirmation (B. Dick, personal communication, September 18, 2013).

3.2.2 Data Collection Methods.

This section outlines the main methodologies used for data collection purposes: convergent interviewing, observation, and reviewing documents and the literature.

3.2.2.1 Convergent Interviewing

Overview: This section describes and justifies the use of convergent interviewing (Dick, 1990) as a qualitative data collection method in the exploratory stage of the current research. Convergent interviewing is both an interview technique and a process for data interpretation (Dick, 2013). The technique consists of a series of long, in-depth interviews that gather unstructured content, while using a structured process for the interviews and for the analysis of the data (Rao & Perry, 2007). The process commences with a broad question. The interviewees' responses generate the themes for questions to be posed in later interviews that will establish confirmatory or disconfirmatory evidence from the data collected. As the interviews cycle, the interviewer progresses from a tentative interpretation of the data from early interviews to a clearer and more stable interpretation by the final interview (Rao & Perry, 2003). Dick proposes that this convergence occurs not only over the series of the interviews,

but within each interview itself. The interviews terminate: when no more information is generated; when an overall pattern is evident in the data; when convergence from previous interviews has been confirmed or disconfirmed; and when discrepancies are explained, if possible (Dick, 1990).

Dick (1990) proposes that convergence occurs as the interviews progress because low priority or divergent items are discarded and high priority or convergent items are posed as specific questions. However, the question of the use of divergent information has generated discussion in the literature (Dick, 1990; Riege & Nair, 2004; Williams & Lewis, 2005). Riege and Nair (2004) have argued that in some situations, the inclusion of divergent items is merited. Dick, a supervisor for this research, agreed that in situations where a disparate range of stakeholders are interviewed, divergent items may warrant investigation. The individuals I interviewed come from a diverse range of disciplines and backgrounds. Therefore, items that were not ratified in the interviews, because they were discipline-specific, were retained for further exploration and triangulation with secondary data sources, namely observation and the literature.

Convergent interviewing was chosen because it does not make a priori assumptions about which questions to ask, as opposed to structured interviews. In this method, researcher bias is minimised because the interviewees themselves provide the data that generates the questions posed as the interviews progress (Dick, 1990). A disadvantage of using formal interviewing protocols that structure both the process and content is that one may miss important information if he or she has not posed the right question.

Justification for Using Convergent Interviewing.

As identified in the preceding chapters, the literature did not indicate any clear multicomponent (MC) and multidisciplinary (MD) theoretical framework for obesity management. I therefore regarded my research as exploratory. Rao and Perry (2003; 2007) have identified action research techniques, such as convergent interviewing, as amenable to pilot or exploratory research. The advantage of convergent interviewing was in facilitating the initial catchment of a broad range of information that I could then narrow down to salient issues over the course of several iterative interviews (Dick, 1990). This flexibility allowed me to control the flow of information being gathered from different sources through a convergent or funnelling process (Riege & Nair, 2004). As predicted by Dick (1990), the interview cycles helped me to crystallise and

consolidate the existing body of knowledge and solutions in relation to the thematic concern. Convergent interviewing processes have already been used to assist MD research teams in arriving at a shared ontology and epistemology (Driedger et al., 2006).

Limitations of Convergent Interviewing and How They Were Addressed.

Limitations of convergent interviewing included interviewer bias (Dick, 1990) and the need for interviewees to have prior knowledge about obesity management (Rao & Perry, 2007). To ensure data quality, both the interviewees and I (the interviewer) had knowledge of obesity and its management. My knowledge of obesity management facilitated the collection of quality data and the analysis of relevant information. Furthermore, the purposeful selection of subjects conversant with the research area enhanced the likelihood of collecting meaningful and useful data. To reduce interviewer bias, a broad initial question was posed. Dick (1990) believes that the content-free approach of convergent interviewing ensures that data are not generated by the interviewer, despite the likelihood of the interviewer having background knowledge of the subject. A key feature of the rigour of convergent interviewing is that it is "data driven." Later interviews allowed me to explore the similarities and differences emerging from earlier interviews. This helped to counter the potential bias of interpretations of the data. In particular, the awareness and pursuit of disconfirming evidence, offered a key source of rigour. By paying attention to data that did not agree with the emerging interpretation, I reduced the potential for bias.

3.2.2.2 Observational Data.

Luders (2004) believes that anyone investigating the lives of human beings, including their everyday practices, has two options. The first, he states, is conversing with the subjects, as achieved by convergent interviewing. The second is observing the subjects. Observation as it occurs in the "real world" helps to provide insight into the thematic concern and builds a picture of the context in which the research problem lies (Stringer & Dwyer, 2005). Observation procedures involved recording (written and audio), analysing, and interpreting people's actions and interactions (Dick, 2013) in a wide variety of settings. Settings used as part of this research included: MD network meetings that I either facilitated or participated in; talks I gave on obesity; MD team meetings and obesity talks I attended as an observer; obesity training events and conferences; and conversations I had with colleagues, including my supervisors, and

clients. Field notes were either taken during the observation or written up immediately after the event to improve accuracy (Liamputtong, 2009). On several occasions, permission was requested to audiotape the observational session; these tapes were later transcribed.

Advantages and Disadvantages of Observation.

Interpreting meaning based on observation has both advantages and drawbacks (Gray, 2009). One advantage is that observation can go beyond espoused positions and allow for a truer indication of the situation. This is particularly true if the observations occur over time, as did my observations of overweight and obese clients (implicit in my practice) and my regular participation in MD network meetings focused on obesity treatment or eating issues. Observation provided information as it occurred and allowed for a more natural relationship to be fostered between me as the researcher, and the stakeholders who were being researched (Cohen, Manion, & Morrison, 2007).

A disadvantage of observation is that the interpretation of meaning is open to the bias of the interpreter, who may potentially be influenced by their own motivations, allegiances, prejudices, values, experiences, and emotions (Zuber-Skerrit & Perry, 2002). To minimise bias, I triangulated observational data with other data sources and endeavoured to anchor observations behaviourally. Results were also discussed with members of the working party who acted as advisors and promoted detachment and objectivity in data interpretation and analysis (Gray, 2009).

3.2.2.3Literature Review.

The literature review as a data collection method is detailed in Section 3.2.1.2 above, and the procedure summarised in Section 3.3 below. In relation to data collection, Silverman (2000) and Stringer and Dwyer (2005) summarise the contribution of the literature reviews as:

- a secondary source of data;
- a platform to provide ideas and concepts to check against actual data;
- an adjunct to ongoing reflection and analysis;
- information to validate and enhance emerging themes, or to identify themes that may be missing; and,

- information to inform ongoing methodological decisions and research directions.

The literature reviews became iterations of the action research cycles, evolving with the data and informing the thematic concern.

Summary - Applying the Action Research Cycle to Data Collection

One aspect of the power of action research is not just that there are multiple cycles, but nested cycles (referred to in Section 3.1.1 above). I will have an overall cycle when I include (after the PhD) the eventual implementation of the model developed during this research. This overall cycle will incorporate planning the research, carrying it out, implementing it and evaluating the results. Nested within this larger cycle are series of cycles. For example, in Figure 3.2 I have outlined the action research cycles I used for documentation. In Table 3.1 I have outlined the cycles for research design, data collection, data analysis and reporting. Within these cycles are further cycles. For example, in data analysis there is the sub-cycle of convergent interviewing and each interview in this sub-cycle forms a sub-sub-cycle. It is the nesting of cycles that provides action research with much of its flexibility and responsiveness (B. Dick, personal communication, September 16, 2013). This is what allows action research to deal with messy situations. Having cycles within cycles provides multiple opportunities for reflection and re-perception and therefore, responsiveness to the prevailing situation (List, 2006).

3.2.3 Procedure and Timeline

The procedures used in this study included a review of the literature, convergent interviewing, and observational procedures. As discussed above, the procedures occurred concurrently throughout the research.

3.2.4 Literature Review

Reviewing the literature was an ongoing process throughout the PhD research. I used the EBSCO database. Relevant articles were housed in EndNote, a reference management software program. Reference to the literature progressed as an ongoing dialectic throughout the study. This dialectic clarified, augmented, challenged, and informed the data that emerged and the direction of the approach in development.

3.2.5 Convergent Interviewing Procedure

Convergent interviewing is described in Section 3.2.1.1 above. The actual procedure for convergent interviewing is detailed in Appendix D. Below is an overview of how the participants were selected, interviewed, and represented.

Participants.

Selection Process.

To achieve a representative sample with maximum diversity, a stakeholder analysis process was conducted (see Appendix D for an outline of the process). Dick (1990) suggested a minimum of twelve interviews as necessary for ensuring stability in perspectives provided by the sample as the data converges. Others have found that stability can occur earlier (Riege & Nair, 2004). Thirteen stakeholders were identified and interviewed (see Table 3.2). A fourteenth stakeholder was interviewed, at a later stage, to better represent certain process factors that emerged from the data.

Interview Process

The person deemed to be the most representative of the target population was interviewed first. The breadth of this person's knowledge and opinion formed a broad platform for subsequent interviews. I paid attention to non-verbal information as well as verbal information, but did not record non-verbals because I was not doing discourse analysis.

Representation of Voice.

I assigned pseudonyms to the people I interviewed so that when they were quoted in the research, their input would be personalised. As the interviewees were representative of a wide range of professions, their professional grouping was used as part of their pseudonym to emphasise professional viewpoints. Any identifying data were not included.

3.2.6 Observational Procedures

Observation is a natural process, and as such, it allowed me to collect data during the course of my work as a psychologist and dietitian. Observational data consisted of situations, events, behaviours, and interactions between people.

Table 3.2

Interviewees and Interview Schedule for Convergent Interviewing.

Interview	Acronym	Representation	Experience	Interview Date
1	DN	Dietitian-Nutritionist	Education (students); research; public policy; former dietetic practitioner	4th August, 2010
2	C1	Client	"Yo-yo dieter"; obese	7th August, 2010
3	DR1	Doctor; Medicare Local Board Member	General practice; board representative for regional healthcare	13th August, 2010
4	PP	Counselling psychologist in private practice	Practitioner; former nurse & drug company representative (nutritionals)	28th August, 2010
5	C2	Client	"Yo-yo dieter"; obese	31st August, 2010
6	SW	Social worker	Practitioner - community/not for profit organisation focused on eating issues	21st September, 2010
7	PR	Research psychologist	Researcher in appetite and obesity	21st September, 2010
8	CM	Naturopath	Education (health professionals) in complementary medicine Research and development of nutritional supplements	15th September, 2010
9	DR2	Endocrinologist (hospital based)	Specialist medical practitioner and researcher	19th October, 2010
10	HEp	Health epidemiologist & behavioural biologist	Educator and researcher in population-based preventive health; consultant to industry & governments; commercial weight loss programs.	22nd October, 2010
11	N1	Team Leader	Management of a community-based, MD team working in health promotion (government)	30th October, 2010
12	N2	Nurses (two)	Health promotion; deliver community-based weight management programs; members of MD team.	30th October, 2010
13	ES	Exercise scientist	Education (students); research in body composition, exercise and obesity; former practitioner	18th November, 2010

Interview	Acronym	Representation	Experience	Interview Date
14	MEd	Medical educationalist	Education (medical professionals) in patient self-care skills	21st October, 2011

To promote consistency, I only used observational data drawn from my work with clients that was representative of most clients. Similarly, I attended the majority of Multidisciplinary Mental Health Professional Network (MHPN) meetings addressing obesity prevention and treatment strategies (OPATS) over the course of my candidature. These meetings were conducted quarterly and were attended by professionals who were invested in improving their practice in the area of obesity and contributing to more effective approaches for managing obesity. These meetings formed one of many chapters for the MHPN. I also collected data from another MHPN chapter attended by 30 medical and allied health professionals who came together with the explicit purpose of discussing ways to improve obesity management. As well as collecting observational data from MHPN meetings to inform the MCMD model being developed, I also attended a series of meetings with a MD team working in community health that was in the preliminary stages of establishing an obesity program. I attended two meetings as an observer (taking detailed notes), and also interviewed three of the team members. Similarly, I gathered observational data from four different activities aimed at obesity management delivered by a government based health agency. My goal was to optimise the confirmability of the observational data. Observational data was used as a supplementary data source to enhance the credibility of the interview data.

3.3 ANALYSIS

Although Table 3.1 suggests that data collection and data analysis occur sequentially, in the current thesis this separation was only made to clarify the components of each process. When conducting action research there is no separation between data collection and data analysis (Gibbs, 2007). An iterative analysis of data commenced at the time data were collected. As detailed by Gray (2009), iterations of analysis allowed me to identify patterns, generate explanations for phenomena, provide data to justify ideas, and inform the ongoing research process. When attempting to find patterns in the data and generate explanations, I used inductive processes as opposed to deductive processes. Gibbs describes induction as "the generation and justification of a general explanation based on the accumulation of lots

of particular, but similar, circumstances" (Gibbs, 2007, p. 7). The next section details how I conducted the analysis.

3.3.1 Detailed Data Analysis Including Categorising and Coding

The first step in my data analysis was to immerse myself in the data generated by the stakeholders. This included reading my typed notes of interviews, supervision sessions, field notes, transcriptions, and the literature. The second step involved thematic analysis. This was achieved by analysing the data and breaking it down into interpretable and meaningful categories, often referred to as conceptual "codes" (Stringer & Dwyer, 2005).

Only fourteen interviews were conducted in relation to the convergent interviews, making it impractical to categorise the data collected into data sets representative of the disciplinary groups interviewed. This was not deemed to be an issue, as the criterion for qualitative sampling is not the sample size but rather case contrast (Kelle, 2004). The representational mix of interviewees maximised the latter criterion. A computerised qualitative data management system, nVivo (QSR, N8, 2010), was used to construct conceptual frameworks from the large volume of data generated by the convergent interviews. nVivo does not analyse or interpret the data. nVivo provides data storage and facilitates the management of the data through processes that allow the information to be categorised, subcategorised, and coded. In fact, computer assisted data analysis can be likened to an electronic filing cabinet that facilitates not just storage, but retrieval of information. Kelle (2004) identified the advantages for the use of information technology in research as follows:

- increased efficiency in managing large volumes of data with respect to both time and human resources;
- a systematised approach that adds transparency to analytic processes; and,
- better options to study relationships between categories and to "play" with the categories.

In the current research, I conducted all the data analysis, thus as I have already disclosed, analysis of the interview transcriptions could not be regarded as neutral. As warned by Driedger et al. (2006), it is likely that my epistemological, ontological, and theoretical assumptions, as well as the social constructions that I developed between interviewees and myself, influenced the interpretation of emerging themes and coding

categories. This transparency of bias is an acknowledged feature of action research (O'Brien, 1998). Researcher bias was neutralised by incorporating participatory processes of data analysis. These processes included the involvement of a working party in reviewing data analysis and the presentation and discussion of data with MD groups I facilitated. To further mitigate or minimise the risks of bias, I paid attention to any evidence, from any source that appeared to challenge or disconfirm my ideas. As already indicated, this included triangulating the data collected during interviews with observational data and information obtained from the literature.

In making sense of the data, I complied with Sandelowski's (1998) recommendation to not only repeat the comments of the participants but to transform the data through analysis and interpretation as well, in light of my own experience. As Coffey and Atkinson (1996) state, "the generation of ideas can never be dependent on the data alone. Data are there to think with and to think about. Ideas about our data go beyond the data" (p. 153). I tried to establish a dialogue between the data and my argument regarding the inclusion or exclusion of assessment and process themes; I also used a thematic approach to organise the data (Holliday, 2007). The themes emerged from the totality of the data and formed in my mind during the process of collecting, recording, and analysing the data. The themes were then used to structure the writing. Consistent with an action research approach, the themes continued to develop responsively through each progressive action research cycle and triangulation with other data collection methods. The intention was to develop theoretical ideas about assessing and managing obesity that go beyond the data.

3.3.2 Coding in nVivo

This section shows how the research progressed from data collection to data analysis. I have only provided examples of the deconstruction of the first two interviews to illustrate how I derived my interpretation. There is too much data to include an overview of the total analysis and interpretation. Similarly, due to the large volume of data generated by the interviews, I have elected to only present representative data within the thesis text. I have assigned more comprehensive synopses of data to the appendices.

After reading the convergent interviews (summaries are available on request), interview data were entered into QSR nVivo. I then conducted inductive content analysis. Conceptual codes were generated and derived directly from the data, as

opposed to existing a priori. This approach is in contrast to theoretically constructed codes and reflects an "emic" (analysis of phenomena from the perspective of the stakeholder) approach to analysis (Liamputtong, 2009). The codes are discovered, rather than imposed (Patton, 1990). The sequential process I used to conduct coding is outlined next.

Free Nodes.

As the approach to the current research was phenomenological, individual cases were analysed. Data from the first interviewee, DN, were coded as free nodes. Free nodes do not presume relationships or connections with other nodes. The primary free node is referred to as a parent node, and groupings under this as child nodes.

An analysis of DN's interview revealed a focus on practitioner (see Table 3.3) and process-related (see Table 3.4) issues. These foci reflected her work history as a tertiary educator, researcher, and policy influencer. Her clinical experience with clients occurred very early in her career and may explain why she did not focus on client-related issues during her interview. Only representative statements are included in the thesis text. A more detailed version of DN's free nodes can be seen in Appendix E.

Table 3.3

Sample Statements of Practitioner-Related Free Nodes and Child Nodes Generated by DN's Convergent Interview.

Free node (parent)	Child node
Practitioner barriers to obesity management	"The doctor won't use anything that is not fast." "When you go to a GP you are usually not well. You are not ready to attack lifestyle issues." "It's about telling people what to do rather than helping them make changes." "Dietitians are lucky to get one week training in obesity."
Attitude towards approaches for obesity management	"The Transtheoretical model is junk. It has no relevance to food and nutrition." "I don't think motivational interviewing makes a difference."
Attitudes about disciplines	"Dietitians are not the only people who can help. They have been unsuccessful because of their very narrow approach." "I don't think GPs have any skills on telling people tips on what they could do with their food. I think a GP's job is to identify who needs help."

Ensuing interviews converged with or diverged from DN's viewpoint, contributing to the evolution of a MCMD approach. The first interviewee to build on DN's interview was Client 1 (C1). C1 was an obese, retired health-care professional who had struggled with her weight for many years. C1's interview introduced client-related free nodes to the analysis (see Table 3.5). C1 also reported information I assigned to practitioner-related free nodes. These comments both converged with and diverged from comments made by DN. For example, unlike DN, C1 viewed dietitians as the obesity experts. However, she agreed with DN that doctors were not experts in weight management, and did not have time to devote to overweight clients. A more detailed overview of C1's comment can be seen in Appendix F.

Table 3.4

Sample Statements of Process-Related Free Nodes and Child Nodes Generated by DN's Convergent Interview.

Free node (parent)	**Child node**
Unhelpful approaches for obesity management	"'It's your fault', is not particularly helpful." "It is too simplistic to say, 'Eat less; move more.'" "Diet histories were great when everyone ate a standard type of meal." "I do not believe one size fits all is correct." "Public health messages such as 'eat less, move more' have no effect."
Helpful approaches for obesity management	"A 3-tiered staged approach: self, triage & specialist assessment." "Get into a partnership system with the client where the client has ownership – a self-management approach." Open ended questioning e.g. "What brings you here today?" "Tailor the advice." "I don't see diet as so urgent. You have to get on top of the lifestyle issues." "You need to think of environmental issues e.g., What it is about where you live that mitigates against activity?"
Limitations of MCMD approaches	"Particular groups only like to work with one person" "You have to have a different funding model to get yours to work." "We tried training the doctors. We couldn't get any engagement." "Most allied health professionals are overweight themselves."

Tree Nodes

As individual analysis progressed, free nodes that clustered together became more obvious and were sorted and grouped into categories called tree nodes (Bazeley, 2007). I arrived at summary themes that I refined iteratively as I entered more data. As I progressed with successive action research cycles, I reassigned, collapsed, renamed, and deleted codes to further clarify the data and to create meaningful, understandable,

and trustworthy categories that explicated the thematic concern being researched. As the interviews cycled, I converged from a tentative interpretation of the data in early interviews to a clearer and more stable interpretation of the constructs and processes relevant to a MC approach to obesity assessment by the time of the final interview. The tree nodes that formed converged into three main categories that I termed "metacodes." These categories were labelled as client factors, practitioner factors, and process factors, and are presented in Chapter 4.

Table 3.5

Summary of Client-Related Free Nodes and Child Nodes Generated by C1's Convergent Interview.

Free node (parent)	Child node
Weight loss barriers (client)	"When things are going bad, I hit the fridge or I comfort eat." "The hunger is like a craving for heroin." "It's a vicious cycle." "I eat unconsciously."
Weight loss strategies (client)	"Self-loathing motivates you to action." "It's about being mindful." "Stop lying."
Weight loss strategies (practitioner)	"I want someone to really listen and not be judgemental." "You need encouragement, understanding, empathy, kindness." "Be treated as an individual; an individual program."
Attitudes about practitioners	"I don't think the doctor is the expert. I think they are too busy." "I think a dietitian is the expert in the field." "I wouldn't go to an exercise physiologist."

Chapter 4: Working Towards a Better System for Weight Management

Make everything as simple as possible, but not simpler.

- *Albert Einstein*

4.1 OVERVIEW

This research originated from my experience of a lack of effectiveness as a practitioner, in generating consistently positive weight loss outcomes for clients in a clinical setting. My colleagues in obesity management, my clients, and I frequently reported feeling dissatisfied by the current methods being used. The refractory nature of obesity reflected its complexity. The first concept presented in this chapter reports the agreement amongst stakeholders involved in this research that current obesity approaches have not been effective. The second concept reports whether stakeholders endorsed the development of a multicomponent multidisciplinary (MCMD) approach recommended by position papers (e.g., American Dietetic Association, 2009). To ensure my research efforts met their needs, I encouraged stakeholders to suggest more effective ways to approach weight management. With the assumption that stakeholders had sanctioned the development of a MCMD approach, my third objective was to develop a MCMD approach for obesity management based on the data provided by the stakeholders.

This chapter is titled, "Working Towards a Better System for Weight Management," rather than "Results," because the process of sorting and categorising the qualitative data was interwoven with analysis and interpretation. The initial cycles of data analysis were conducted on the interview data that had been generated. The interview data were quite divergent, so additional sources of data (observations and the literature) were triangulated with the interview data in ensuing cycles of analysis to ensure rigour. Table 4.1 provides an overview of the chapter structure. To assist the reader, Table 4.2 refreshes the reader with the sequence of convergent interviews and the acronyms used to denote each interviewee.

Table 4.1

Outline for Chapter 4 - "Working Towards a Better System for Weight Management"

Making sense of the Data	Does the data justify the research?	Disillusionment with current approaches
		MCMD approaches are supported
		Other ideas for improving weight management
	Making sense of Convergent interviews	Free Nodes
		Tree Nodes
		Metacodes
	Triangulating Data (interviews, observations, literature)	Which Components
		Which Discipline

Table 4.2

Acronym Assigned to Each Interviewee.

Interviewee and Acronym
1. Dietitian-nutritionist (DN)
2. Overweight client (C1)
3. General medical practitioner (DR1)
4. Private-practice psychologist (PP)
5. Obese client (C2)
6. Social worker (SW)
7. Research psychologist (PR)
8. Complementary medicine educator (CM)
9. Endocrinologist (DR2)
10. Health epidemiologist (HEp) and behavioural biologist
11. Team Leader, a nurse (N1)
12. Two nurses (N2)
13. Exercise science (ES)
14. Medical educationalist (MEd)

4.1.1 Do the Data Justify the Research?

The analysis of the convergent interviews indicated that stakeholders shared my disillusionment with current weight management strategies. In addition, the stakeholders supported position papers and obesity guideline recommendations for pursuing MC and MD approaches for weight management. Specifically, they championed the benefit of incorporating a stronger psychology component in weight management programs (elaborated in Section 4.2.2) and adopting client-focused and self-management approaches. Due to the wealth of data produced from the interviews, I have elected to only present representative data within the thesis text. Synopses of the remaining data have been assigned to the appendices.

4.1.1.1 Disillusionment with current weight loss strategies

Convergence. The issue that elicited the strongest convergence in the data was stakeholder perceptions of the ineffectiveness of weight management strategies. Eleven of the fourteen interviewees supported this view. The remaining three interviewees did not provide an opinion. Table 4.3 outlines representative data, and Appendix G details collective stakeholder comments.

Table 4.3

Convergent Interview Data Endorsing Concerns About the Effectiveness of Current Obesity Management Strategies

Representative Stakeholder Comments
Dietitian-Nutritionist (DN)
• "Public health messages don't work. Nothing has worked. We have got worse."
• "Consumer research says people are sick to death of being told to eat more vegetables."
• "I do not believe that one size fits all is correct."
Family Doctor (DR1)
• "I don't think that our current interventions are actually doing anything. Our diets are up the creek and the pyramid is all wrong."
Client (C2)
• "I've tried everything. If anything was going to work, it would have."
Endocrinologist (DR2)
• "We've all got buckets of patients who've tried dieting and it hasn't worked. Obesity clinics around the globe will tell you the same story."
• "If you look at the long term intervention studies with aggressive lifestyle modification, within a year everybody has reverted to the norm."

Divergence. Although two of the stakeholders, the private practice psychologist (PP) and the health epidemiologist (HEp), were pessimistic towards the overall

effectiveness of weight management strategies, they agreed that they had the potential to be personally effective on an individual basis in particular situations. PP qualified that she "could be successful with people not looking for a quick fix." HEp said he could be effective at the individual level, particularly if the client was a male engineer. Although this was the only divergent information in the interview data, neither stakeholder performed long-term evaluation of their clients' weight loss success.

The only report of a markedly successful weight management strategy was that of bariatric surgery. However, this thesis focuses on non-surgical approaches to obesity management, and will therefore not explore this option.

Triangulation.

When scanning the observational data (refer to Appendix H for a summary of said data), I was unable to find any disconfirming evidence for the overall consensus generated by the convergent interviews. Examples of supporting observational views are listed below.

- "Diets and weight loss programs as we know them, do not work" (physician working on a corporate weight loss program – refer to Appendix H, Section H1.6).
- An evaluation for a government funded health promotion initiative demonstrated extremely poor outcomes. Of 200 participants only 4 respondents provided outcome data that could be evaluated (refer to Appendix H, Section H2.3).
- Feedback from a weight management group and from individual clients (refer to Appendix H, Section H2.2 and H4.1) outlines the barriers encountered in achieving positive weight loss outcomes.

Literature reviews presented in Chapter 1 (refer to Section 1.2.4) and Chapter 2 (refer to Section 2.3.1) showed scant support for the effectiveness of individual-focused weight management approaches (e.g., Laddu et al., 2011; Mann et al., 2007; Tsai & Wadden, 2005; Tsai & Wadden, 2009). Although small weight gains were noted in some reviews (Waters et al., 2011), weight regain was common (Loveman et al., 2011). In many of the reviews, the heterogeneity of study designs hindered generalisation of outcomes (e.g., Collins et al., 2006; Waters et al., 2011).

Conclusion

Stakeholder consensus regarding ineffectiveness of current individual-focused weight management strategies was supported by supplementary data sources. This information provided justification for the current research.

4.1.1.2 MCMD approaches are supported

Convergence. A predictable outcome that surfaced from stakeholder consensus of current weight management strategies not generating consistent outcomes was a number of recommendations for new approaches to obesity management. There was strong support for MC and/or MD models among the stakeholders. Table 4.4 presents representative statements of support for MCMD approaches, and Appendix I contains more detailed comments.

Table 4.4

Convergent Interview Data Endorsing a MCMD Approach to Obesity Management.

Representative Stakeholder Comments
Family Doctor (DR1)
• "Integrated health care is the ideal set up; it's a mindset for training of all healthcare."
Research Psychologist (PR)
• "Multi-disciplinary is a fantastic way to go because obesity is a multi-faceted problem."
• "There isn't any cohesive multi-disciplinary intervention that I'm aware of."
Community Health Nurses (N1, N2).
• "We are a multi-disciplinary team."

Divergence. The endocrinologist (DR2) was the only practitioner who did not support a MCMD approach. DR2 said, "I think a MD approach is overcomplicating a simple issue." DR2 believed all general practitioners (GPs) conducted medical histories of their patients, according to NHMRC guidelines, as a regular practice. However, C1's and C2's countered DR2's claim by referring to short consultation times that hampered GPs being able to address their weight issues. "You are in and you are out," said C2.

C1 also failed to support a MCMD approach. She preferred to only consult a dietitian for weight management due to her consideration of dietitians as the experts on weight management. This reinforced DN's advice, "We need to ask people whether they prefer a multi-professional approach or a single person."

Triangulation with the literature

Literature previously presented in Chapters 1 (refer to Section 1.2.5) and 2 (refer to Section 2.3.4) provided evidence of recommendations for MCMD approaches to weight management. The most recent Australian guidelines for the management of obesity confirmed recommendations for MCMD approaches: "During active weight management, multicomponent (MC) interventions that are delivered through multidisciplinary (MD) care may be more effective than interventions delivered by individual health professionals" (National Health and Medical Research Council, 2013, p. 15). However, despite recommendations for MC and/or MD approaches in position papers and guidelines for obesity, I have been unable to find any frameworks or procedures for *implementing* a MCMD approach. As detailed in Sections 1.2.5 and 2.3.4, the heterogeneity of MC and/or MD studies in obesity management has hindered generalising results that would enable an evidence-base for a MCMD approach to be formed (e.g., Loveman et al., 2011).

Summary. The interview data and the supplementary data provided strong support for the purpose of this thesis research, which aimed to develop a MCMD approach for obesity management.

4.1.1.3 Individual versus population-based approaches

I view individual and population approaches to obesity management as complementary. Using both approaches would likely contribute to better weight loss results than either approach alone. However, I chose to take an individual approach to weight management in this thesis research because it related to my area of practice in a clinical setting and was therefore a useful and worthwhile area for me to research. Below I provide an overview on stakeholder opinion regarding individual and population based approaches for weight management.

Convergence. DN and HEp justified their support for individual approaches over population-based approaches in the comments below.

- "We need a new approach because what we are doing is not working. The Federal government poured millions into weight management. The target is trying to reduce the population's weight in 3 years by 20%. They have no chance. The approach is reliant on flimsy things that we know don't work. It

is population health based. Nothing is based on individuals. I think that individual programs will be the only things that work" (DN).

- "I, and everybody else have been a total failure at the population level" (HEp).

Other interviewees supporting an individual focus included C1 and C2, who were individual clients, and practitioners treating individual clients – PP, SW, DR1, N1 and N2 and Med.

Divergence. Although DR2 treated individuals, he disputed the efficacy of individual approaches. He said, "So many of us have come around to the idea that the only way you're going to be able to do anything about this societal problem is through legislation of some description." He proffered ideas such as "making health insurance costs higher for obese people and taxing high fat foods or high caloric foods." However, DR2 admitted, "No one on the planet is going to implement these ideas, at least in the foreseeable future." The exercise scientist (ES), although an advocate of individual approaches (this was her focus when she worked as a clinician), agreed in part with DR2. She explained that there was a "chunk of the population who did not care about addressing their weight." ES believed that obesity levels in this cohort could only be reduced through a government initiative that imposed a financial cost such as "paying higher healthcare premiums or paying for two seats on planes." PR conducted research on individual approaches but qualified, "In terms of a longer strategy, I think weight management, nutritional information, basic cookery and physical activity needs to be built into school curriculum."

Triangulation with observation and the literature.

The observational data was obtained from individual clients or practitioners who had worked with individual clients. This skewed the observational data to a focus on individual approaches; none of the observed stakeholders referred to population based approaches.

The literature presented in Chapter 1 and 2 was not exhaustive but did indicate more occasions of successful weight loss with individual approaches (e.g., Galani & Schneider, 2007) than broader-based approaches (e.g., Laddu et al., 2011; Walls et al., 2011). This supported the views of HEp and DN. One exception showed small weight changes at a community level (Millar et al., 2011). The relevancy of this study to the

current research was its recommendation to target the home environment and individual behaviours.

Summary. While examples of divergence were noted, there was sufficient support for adjusting the focus of this research to an individual level of obesity treatment. Notwithstanding, there appears to be a case for individual and population-based approaches complementing one another. However, it is not within the limits of this research to explore broader scale approaches to obesity management.

Conclusion.

Overall, the data justified the thematic concern and confirmed that pursuing the development of a MCMD approach to obesity management tailored to the individual was deemed a worthy research endeavour by stakeholders, as well as by the literature. I was unable to identify any specific or universal recommendations for *implementing* a MCMD approach. This finding further justified the current research.

4.2 MAKING SENSE OF THE CONVERGENT INTERVIEWING DATA

My first step in developing a MCMD approach for obesity management was to distil and make meaning of the convergent interviewing data. As mentioned, I used nVivo, a data management software, to assist with data analysis. The analysis of the data from free nodes to tree nodes was outlined at the end of the methodology chapter (refer to Section 3.3.2). Below is an analysis and interpretation of the tree nodes that emerged using nVivo and were used to evolve the framework for the MCMD approach.

4.2.1 nVivo Analysis of the Convergent Interviews

Metacodes.

Three central themes emerged from the interview data and were labelled: *client factors, practitioner factors, and process factors.* I adopted the term *metacode* to indicate that these factors were the over-arching themes running through the data (see Figure 4.1). These themes mirrored the data sources (clients and practitioners) and their ideas for approaches to weight management (processes). A subsequent reference to the literature showed that these same components were also distilled in a Cochrane Collaboration review investigating MC interventions for diabetes (Renders et al., 2001).

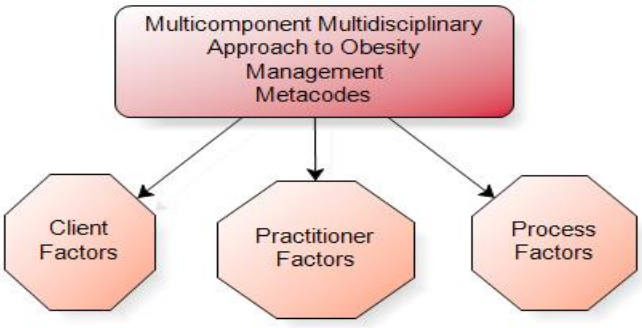

Figure 4.1. Metacodes distilled from convergent interview data using nVivo.

To improve the conceptual clarity of the nodal hierarchies, the tree nodes positioned under each metacode were referred to as parent nodes, child nodes, grandchild nodes, great grandchild nodes, great-great grandchild nodes, and so on. These categories and subcategories formed descriptive labels for deconstructing the relevant metacode (Bazeley, 2007). The progressive and deeper levels of generational analysis illustrated the multi-faceted complexity of obesity. As cautioned by the research psychologist (PR), "You can't just target obesity from one angle and expect it to work."

In the body of text that follows, the three parent categories for each metacode have been presented as nVivo models (see Figures 4.2, 4.4 and 4.6). As a way of managing the large volume of data, only one parent node for each metacode has been explicated in the thesis text. The remaining models can be found in Appendix J.

Analysis and Interpretation Note:

An action research methodology is being used; thus, it is assumed that the components of the metacodes will be modified through successive cycles of inquiry and action within both the current research program and in future work. Subsequently, the following presentation of nodal categories is notional. The deconstruction of data was performed at one point in time and forms a starting point only. To assist reading, nodes are presented in italics.

4.2.1.1Client factors

The purpose of briefly overviewing each parent node was to justify and explain the node's inclusion and to begin building a picture of what a preliminary MCMD model for weight management could look like.

The *client factor* metacode was composed of the components directly relating to the client. The *client factor* components that emerged from the data included *biomedical status* (elaborated below), *demographics, diet and nutrition, health behaviours, environmental issues, and psychological, social, and weight-related factors* (see Figure 4.2). This constellation of *client factors* were consistent with position papers (American College of Surgeons, 2004; American Dietetic Association, 2009) recommending that obesity management should encompass a range of aspects of health, including cultural, social, physical, and psychological issues. The breadth of these *client factor* parent categories, if incorporated into an obesity assessment, could facilitate a more holistic understanding of the client and assist in tailoring obesity interventions to the individual. The scope of the parent nodes also justified why multiple disciplines are necessary in effectively treating obesity.

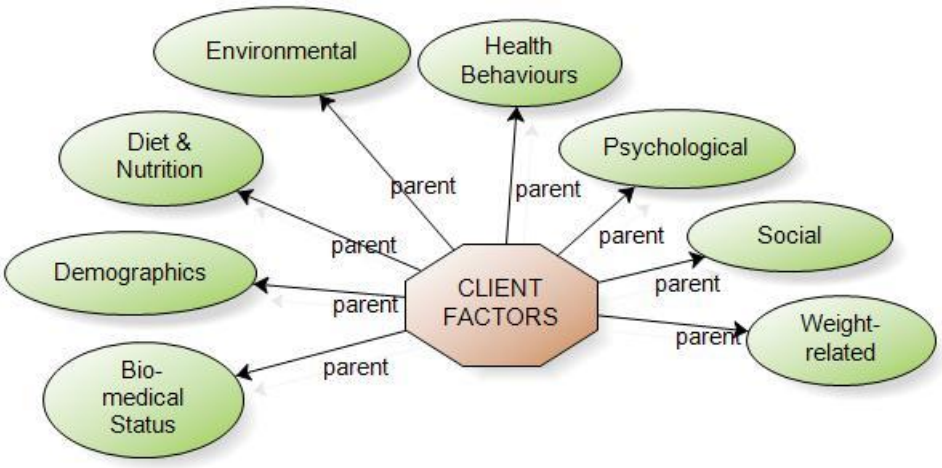

Figure 4.2. Parent categories for the client factor metacode.

There were eight parent nodes. As noted, only one parent node, *biomedical status* (see Figure 4.3), has been presented in the thesis text as an example. The remaining seven *client factor* parent nodes are summarised in Appendix J, Section J1.

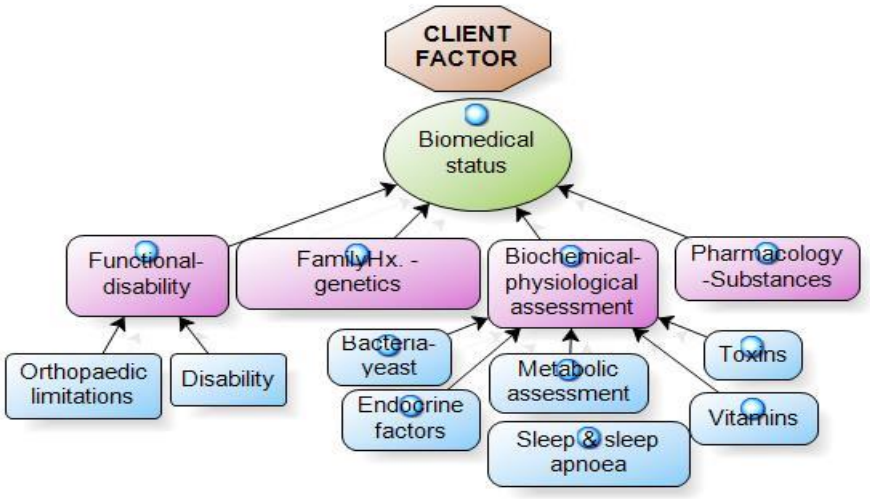

Figure 4.3. Client factor - biomedical status and child nodes.

Biomedical status

Figure 4.3 presents the tree node for the *biomedical Status* parent. It is assumed that the full assessment of a client's *biomedical status* would be informed and conducted by a medically trained professional such as a general practitioner (GP). However, a screening for this component could potentially be performed by any trained health professional. As noted, the breakdown of the parent nodes was notional. Each parent node, including *biomedical status*, will require further development, in consultation with the health professionals associated with that node.

Triangulation with the literature and observation:

Theoretically, a medical examination should identify any physiological or pharmacological causes of obesity, and assess health risks including the presence of weight-related comorbidities (National Health and Medical Research Council, 2003a, 2012b), among them being:

- Type 2 diabetes, hypertension, hypothyroidism, dyslipidaemia, non-alcoholic steatohepatitis, insulin resistance, gastro-oesophageal reflux disease (GORD), sleep apnoea, breathlessness, asthma, and daytime sleepiness and fatigue (NHMRC, 2003, 2012);
- osteoarthritis and work disability (Visscher & Seidell, 2001); and,
- cardiorespiratory fitness and screening for musculoskeletal (e.g. arthritis) issues prior to physical activity prescription (American Dietetic Association, 2009).

Pharmacological assessment of prescribed and non-prescribed legal substances will identify any associations with either obesity or drug-nutrient interactions. For example, second-generation antipsychotic medications (e.g., aripiprazole/Abilify, olanzapine/Zyprexa, quetiapine/Seroquel, and risperidone/Risperdal) and mood stabilisers such as lithium are associated with weight gain (National Health and Medical Research Council, 2012b). Other drugs known to exacerbate weight gain include benzodiazepines, corticosteroids, tricyclic antidepressants, anti-epileptics, sulphonylureas and insulin (National Health and Medical Research Council, 2003a).

Observational data provided by a GP during a MHPN meeting (refer to Appendix H, Section H1.6) confirmed the role of pharmacological management in primary healthcare. The GP explained that pharmacological approaches were the primary treatment approach used in her workplace. Her workplace was a MD clinic specialising in mental health issues and eating disorders

Closely aligned with the *pharmacological assessment* was the assessment of illegal drugs and alcohol intake. Alcohol consumption is unequivocally related to health outcomes, including obesity, and will need to be assessed in relation to energy intake (NHMRC, 2003). The impact on other factors that affect appetite, such as sleep, would also need to be assessed (Egger, Pearson, Pal, & Swinburn, 2007). The cessation of smoking is another substance-related contributor to weight gain (National Institute for Health and Clinical Excellence, 2006) requiring assessment.

Functional disability is important to assess, as it relates both to determining physical restrictions for exercise and to tailoring interventions to the specific needs of the individual. Issues with the patient's literacy, or with his or her visual and hearing abilities, will impact how programs can be delivered.

As DR2 mentioned, *family history* is one of the most powerful indicators that informs a biomedical assessment: "all you've got to do is ask them what their parents or siblings are like" (DR2).

In summary, the child nodes emergent in the convergent interviews for *biomedical status* appeared to be justified. At this stage they included *functional and disability assessments, family history* (including genetic predispositions), *biochemical and physiological assessments, and pharmacological and substance-use assessment.* Further elaboration and final agreement on this component would be best achieved in

consultation with medical professionals. In keeping with the action research methodology underpinning the MCMD approach the components will be matched to the individual client and informed by both evidence and practice.

Further triangulation combined with learning outcomes

Capitalising on client factors. The client factors metacode that emerged in the data can be compared to the client or extra-therapeutic factors that have been presented as an element of common factors in psychotherapeutic research (Duncan, Miller, Wampold, & Hubble, 2009). Client factors have been recognised as providing a major contribution to therapeutic outcomes (Duncan et al., 2004). Client or extra-therapeutic factors highlighted in psychotherapy research include motivation, readiness to change, personal strengths and resources, levels of functioning (physically and mentally), support networks, financial status, and life events (Hubble, duncan, Miller, & Wampold, 2010). These client factors were identified by stakeholders during interviews and can therefore be explicitly capitalised on as a resource to improve outcomes using the MCMD weight management model.

Clients as resources. Hubble et al. (2010) contend that clients could be considered "the most neglected therapeutic factor in studies of psychotherapy" (p. 35). A GP providing observational data echoed, "The most under-utilised resource in healthcare is the patient." Duncan et al. (2004) questioned why continuing professional development for healthcare professionals focused so strongly on models, techniques, and treatments, when the client's ability to change "transcends" these factors. During the interviews, SW, N1, and N2 were the practitioners who most strongly emphasised the role of the client in designing treatment. Notwithstanding, most interviewees mentioned the importance of client-practitioner fit in passing (see below). However, the literature (Realpe & Wallace, 2010) and observational data demonstrated a tendency for practitioners to disregard the role of the client in treatment initiatives and to instead focus more on "the evidence," the practitioner's role, and the various approaches implemented.

Consult the client. The data indicated that obese clients were dissatisfied with their weight, and had likely made several previous attempts to lose weight. Notwithstanding, they continued to pursue different options that would enable them to lose weight permanently. Based on the information provided by clients, and the methods sections of research studies I reviewed, clients/participants were usually not

consulted during the development of weight management programs in which they participated. C1 and C2 were testament to this fact in commercial settings. Ignoring the client's needs belies the concept of self-management promulgated by health professional regulation agencies (Department of Health, 2011). As Lambert, Garfield and Bergin (2004) emphasise, "Clients are not inert objects or diagnostic categories on whom techniques are administered. They are not dependent variables on which independent variables operate. People are agentive beings who are effective forces in the complex of causal events" (p. 814).

The practice of reducing clients to a diagnostic classification and applying a pre-formulated weight-loss practice has not translated into positive weight management outcomes (Mann et al., 2007; Tsai & Wadden, 2005). Performing a comprehensive assessment of the client (bio-medically, socially, psychologically, and behaviourally), will allow the client's obesity treatment to be tailored to who he or she is, and what he or she wants. It will also allow the treatment to address the issues the client is currently confronting in his or her life. As Hubble et al. (2010) have stated, the practitioner cannot "know best," independent of the consumer. The therapeutic process must involve client engagement to be of utmost benefit to the client (Wampold, 2006).

In summary, for the MCMD approach for obesity management to optimise client outcomes, the client must be an active participant in helping design and monitor a program that meets his or her specific needs.

4.2.1.2 Practitioner factors

One of the three metacodes was *practitioner factors*. The parent nodes for this metacode included *practitioner abilities and constraints,* which could affect a practitioner's ability to treat obesity and achieve positive outcomes; *professional roles and boundaries;* the practitioner's *process approach; and client-practitioner fit* (see Figure 4.4). *Client-practitioner fit* has been explicated below due to the strong recommendation it received in the convergent interviews (DN, C1, C2, N1, N2, SW, MEd, PR, and PP). The remaining practitioner factors can be found in Appendix J, Section J2.

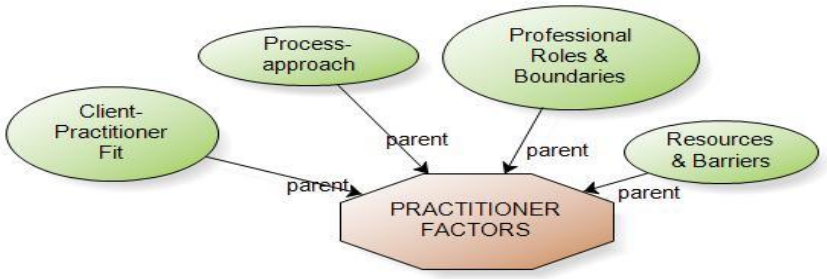

Figure 4.4. Parent assessment categories for the practitioner factor metacode.

Client-practitioner fit

Client-practitioner fit (see Figure 4.5) involves more than just ensuring that the client is referred to a dietitian if he or she requires nutrition services or to a psychologist if he or she is depressed. *Client-practitioner fit* refers to the quality of the relationship between the client and his or her practitioner. This relationship is referred to as the therapeutic or working alliance. The working alliance impacts the client factors discussed in the section immediately above (Duncan et al., 2004).

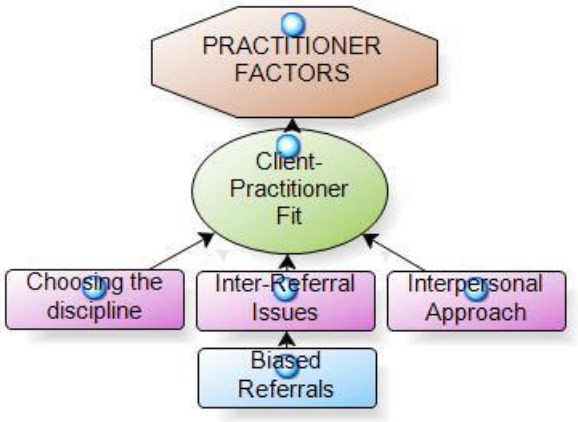

Figure 4.5. Practitioner factor – client-practitioner fit and child nodes.

Triangulating practitioner factors

The inclusion of the *client-practitioner fit* child node was supported by numerous studies that indicate that the therapeutic or working alliance is one of the strongest predictors of therapeutic outcomes (Taber et al., 2011). Optimising *client-practitioner fit* also reduces psychotherapy treatment dropout (Sharf et al., 2010).

Although there are a significant number of research papers on working alliance and psychotherapy outcomes, there are very few published articles on working alliance and obesity. An EBSCO search identified only one study that explored client-practitioner relationships and obesity management outcomes (Abramson, Garg, &

Meghreblian, 1980). Abramson et al. found that weight loss outcomes were adversely affected when the *client-practitioner* relationship was disrupted. Of note, differences in competence levels between therapists were not significant.

The EBSCO search identified more studies examining *client-practitioner fit* in the eating disorder literature. Similar to psychotherapy research (Duncan, 2012), the eating disorder literature repeatedly indicated that working alliance was important for client engagement and motivation (de la Rie et al., 2006). This literature also confirmed that alliance contributed to retention (Gallop, Kennedy, & Stern, 1994) and outcomes, such as early treatment response (Pereira, Lock, & Oggins, 2006) and longer term outcomes (Loeb et al., 2005; Pereira, 2010).

The two clients who were convergently interviewed endorsed the importance of therapeutic alliance. They agreed that "liking" their practitioner was a prerequisite for retention in weight loss programs. Studies have further confirmed that personality congruence between the client and the practitioner optimises alliance (Taber et al., 2011).

The amount of change attributable to the working alliance has been estimated to be five to seven times greater than what can be attributed to the specific model or technique (Wampold, 2001). This suggests that along with amplifying client factors, the process of matching the therapist and practitioner plays an important role in optimising therapeutic outcomes and should be applied in this MCMD model.

4.2.1.3 Process factors.

Process factors assist in tailoring the MCMD approach and implementing the interventions in a dynamic manner that is responsive to the client's condition and situation, at any given time. Among other things, *process factors* promote ongoing engagement by the client. *Process factors* were divided into the four parent nodes: *client process factors, practitioner process factors, team process factor, and process approach* (see Figure 4.6). Only *team process factors* will be represented in the thesis text due to space constraints. I chose to present *team process factors* in the text because team management issues will be an important consideration in optimising the success of a MCMD approach. The remaining process factors are presented in Appendix J, Section J3.

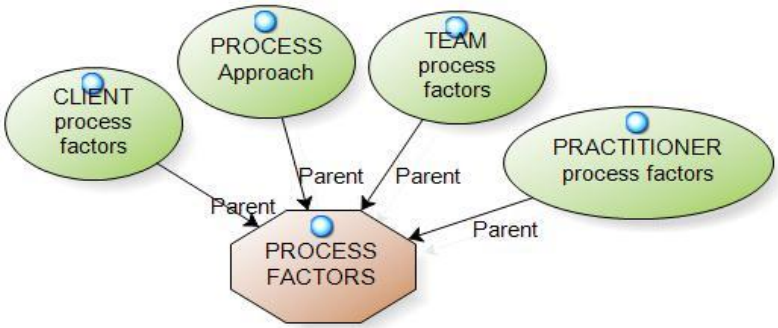

Figure 4.6. Parent assessment categories for the process factor metacode.

Team process factors.

The *process factor* labelled *team process factor (*see Figure 4.7) was devolved into the *financial factors* that determine team development and performance and into components associated with *managing teams.*

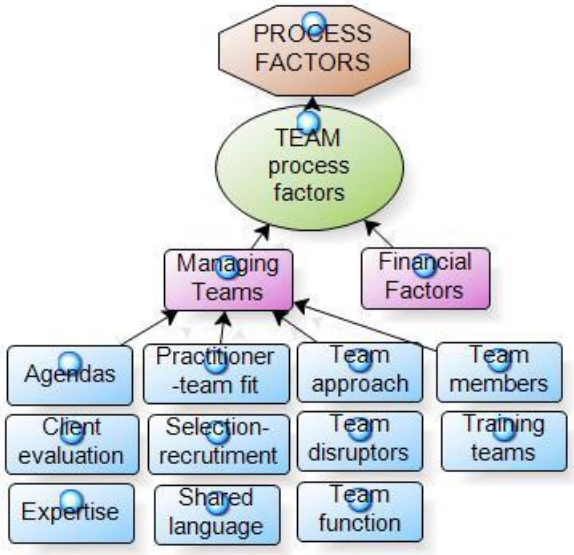

Figure 4.7. Process factor – team process factors.

Team processes are integral to team effectiveness (Dick, 1991). N1, the team leader of a MD team, expanded upon team process issues in the most depth. N2, SW, MEd and DN also referred to team, but in much less detail. This pattern of responding reflected the working background of the stakeholders interviewed. The practitioners who were interviewed confirmed a silo mentality. PP said, “I don’t know how to function outside my silo. I have been trained to work as an individual.” A senior lecturer who trained health psychologists at a tertiary level disclosed to me during a conversation at the end of my candidature that team processes were still not taught to

psychologists at tertiary level. The person deemed this to be an issue that needed to be urgently addressed.

Triangulation with observations. I conducted most of the observational data collection in group settings, with a series of observational events being explicitly dedicated to having stakeholders put forward their ideas for developing a MCMD approach to obesity management. Due to insufficient collaboration among the practitioners, these latter observational sessions, did not result in the desired outcome of developing a MCMD approach. A "silo mentality" prevailed. One of my reflections was: "The lack of cohesion within the group and the difficulty in facilitating the group to focus on the goal of developing a MCMD approach to weight management underscored how poorly the practitioners worked in a team. As there were a number of disciplines, the lack of cohesion was not discipline specific. Attendees did not come prepared with ideas and spoke over one another. The behaviour of participants in most MHPN meetings suggested a culture of expecting to be 'filled up' with information rather than providing information or collaborating to achieve improved practices."

Triangulation with the literature. The literature I reviewed on MC and/or MD studies for obesity management did not refer to team processes when exploring the effectiveness of MC and/or MD approaches (e.g., Bovet et al., 2008; Donini et al., 2009). However, there was a repository of information in the healthcare literature that provided conceptual frameworks to influence policy and practice that included a focus on teamwork. Examples included: "Creating a culture for interdisciplinary professional practice" (Orchard et al., 2005); "Promoting effective teamwork in healthcare" (Oandasan et al., 2006); "A new health system for the 21st century (IOM, 2011); and "Transforming the delivery of health and social care" (Ham et al., 2012).

Summary. Team process factors is an example of a nodal category that I decided to include despite limited support in the interview data and in the observational data or MCMD-specific literature. My justification was based on disconfirming evidence in the form of data provided by the stakeholders who actually worked in MD teams (N1 and N2), and the rationalisation of seminal literature conceptualising more effective approaches to health care (e.g., Institute for Clinical Systems Improvement, 2011; Institute of Medicine, 2001; Oandasan et al., 2006; Realpe & Wallace, 2010; Wagner et al., 2001). These sources strongly promoted the importance of collaborative team work in health care.

The finding in the current research wherein the majority of stakeholders did not refer to team process may be deemed to be a further indication of the "silo mentality" that appeared to prevail in observational sessions. This "silo mentality" in turn may be an artefact of being trained in a discipline-specific training program and then working in independent practice. Regardless, as the approach being developed is MD the importance of developing strategies to improve collaborative function among health professionals was paradoxically underscored by the pattern of data in the current research.

Conclusion

In summary, three metacodes initially emerged – client, practitioner, and process factors. Each metacode devolved into a hierarchical nodal system that started with parent nodes and then progressively spread into child nodes, grandchild nodes, great grandchild nodes, and so on. This made up the first cycle of analysis and formed a starting point for a MCMD approach to obesity management. As noted, these models will evolve and change with iterative analyses of the data over the course of further development and implementation at a post-doctoral level.

The following sections of Chapter 4 will focus on:

- which components to include in a MCMD approach?
- which discipline to include in a MCMD approach?

4.2.2 Which Components to Include in a MCMD Approach?

I re-analysed the convergent interviews and observational data to distil the components that stakeholders identified as germane to a MCMD approach to obesity management. Components identified by the data in order of emphasis given by the convergent interviews included: psychology, food and nutrition, physical activity, medicine, and to a lesser extent, environmental issues. As the amount of data was large, only the component with the most convergence has been presented in detail. The remaining components are detailed in Appendix K.

Introduce more psychology.

Convergence. Both practitioners and clients identified a consideration of psychology and psychological factors as a major missing component in current weight management approaches (see Table 4.5).

Table 4.5

Convergent Interview Data Endorsing Psychology as a Component for a MCMD Approach.

Representative Stakeholder Comments
• "We need much more psychology and to learn how to manage people" (DN).
• "To me the psychology comes first" (ES).
• "Psychology has a massive place in obesity research and treatment. It is one of the major causes of obesity" (PR).
• "It's very unusual to find somebody who is morbidly obese who doesn't have any other mental health problems. So, everyone with a BMI over 30 should be referred to a psychologist" (PP**).**
• "I think the psychological is something that is really missing; my weight gain is definitely psychological" (C1).
• "Psychology helped me deal with who I am, what my personality is, why I do the things I do, why I think the things I think, and how they affect the end goal" (C2).

SW provided psychological counselling as part of her practice. CM worked with client motivation, but once motivation was established, focused on physiological factors relevant to weight loss.

Divergence. Neither DR1 nor DR2 referred their obese clients to psychologists. DR2 was not supportive of psychological interventions due to his belief that "patients fundamentally don't have any interest in losing weight." He supported his argument with the following comment:

- "My colleague says that he insists that medical students come to at least one of his obesity clinics so that they can show how a practitioner with incredible impact is sympathetic, understands the physiology, understands the pathology, has a deep and meaningful discussion with the patient, makes absolutely **no** difference to their outcome."

Observation: The nurses who ran a community health weight loss program did not use psychologists in their weight loss program. However, they delivered psychological strategies themselves throughout the program. Psychologists who attended MHPN meetings (refer to Appendix H, Section H1) strongly believed psychology and psychologists should play a role in obesity management.

A consistent component presented in the literature I reviewed on MC approaches for obesity was behaviour (e.g., Kelly & Melnyk, 2008). Behaviour change is viewed as a component of psychology. The literature indicated that psychology, as a

discipline, offered support with: eating and stress (Montes & Kravitz, 2011); self-control and food consumption (Muraven, 2010); binge eating and associated cognitions (Nauta, Hospers, Jansen, & Kok, 2000); depression and obesity, and their relationship to physical health problems (Needham, Epel, Adler, & Kiefe, 2010); weight perception and distress (Atlantis & Ball, 2008); relapse prevention and problem solving for weight maintenance (Perri et al., 2001); and personality and obesity trends (Sutin, Ferrucci, Zonderman, & Terracciano, 2011).

Food and nutrition.

Convergent information: There was a general acceptance by the stakeholders that food and nutrition would be a component of any weight loss approach. This finding is reiterated by dietary and obesity guidelines (National Health and Medical Research Council, 2012a, 2013). The majority of research studies, reviews and obesity guidelines or position papers presented in this thesis paper included diet and nutrition as a component for weight loss (e.g., Kirk et al., 2012; National Institute for Health and Clinical Excellence, 2006; Sung-Chan, Sung, Zhao, & Brownson, 2013).

Divergent information: The only divergence in relation to food and nutrition was whether a dietitian was actually required to provide advice on diet and nutrition (DR2).

Physical activity.

Convergent information. The majority of stakeholders acknowledged that physical activity was a necessary component of a weight loss program.

Divergent information. Notwithstanding, exercise was the least understood of the components of obesity addressed in this section. ES confirmed, "Very few people understand the energy balance model and understand the energy of exercise." Stakeholders were also not in agreement as to whose role it was to deliver exercise advice.

Triangulation with literature. A Cochrane review demonstrated that exercise positively affects the weight of overweight and obese individuals (Shaw et al., 2009). Exercise alone had a marginal impact on weight loss, but when combined with diet, weight loss increased notably, regardless of exercise intensity. Overall, diet was more effective than exercise in facilitating weight loss. Other reviews support this finding (Avenell et al., 2004b; Turk et al., 2009). Furthermore, placing greater emphasis on

exercise, combined with increasing treatment duration, delays weight regain (Jeffery et al., 2000).

Medicine.

The practitioners with medical backgrounds (i.e., nurses and doctors) openly supported the inclusion of medicine and doctors in a weight management approach. Based on the evidence provided in the explication of the *biomedical (client factor) node* (Section 4.2.1.4), the place of medicine in weight management is well justified. However, a number of studies indicated that medical practitioners did not feel adequately trained in the area of obesity management (Derbas et al., 2009; Dolor et al., 2010; Forman-Hoffman, Little, & Wahls, 2006). This belied DR2's contention that all GPs knew what assessments to conduct and that there was no need for a MCMD approach.

Environmental issues.

Interviewees did not consistently refer to the client's environment as a consideration in weight management. While PP and SW referred to the client's social environment only DN, HEp, and DR2 referred to the broader environment. HEp encapsulated the relationship between obesity and the environment as follows: "Obesity is a signal that something's going wrong in the whole environment."

Considering the prominent role that the environment plays in obesity (Butland et al., 2007; Swinburn et al., 2011), it was somewhat surprising that stakeholders did not focus on it. Their apparent disregard for the environment could be attributed to the "creeping" nature of obesity (HEp) and practitioners providing data from the framework in which they worked. Literature sources that explored more innovative approaches to managing obesity and chronic disease incorporated environmental foci (e.g., Butland et al., 2007; Oandasan et al., 2006; Swinburn et al., 2011; Wagner et al., 2001).

4.2.3 Which Discipline to Include in a MCMD Approach?

I also reanalysed the interview and observational data to identify which disciplines held the most support for inclusion in a MCMD approach. However, data from the convergent interviews did not generate clear consensus as to which disciplines would be best included. Practitioners appeared to interpret obesity through the lens of their own discipline. There was also a lack of general knowledge about one

another's role and how the roles could be applied in obesity management. As already noted in relation to *team process factors,* a "silo mentality" created by training in a discipline-specific program (that does not include training in teamwork) and working in independent practice, would likely have affected the views of stakeholders who were practitioners. Similarly, clients differed in opinion regarding their preferences as to who should manage their weight. A cursory reference to the literature indicated a tendency for a nutrition, exercise and behavioural professional to be included in weight management research. However, a more in-depth treatise of this literature (presented below) shows that the type of discipline to be in included in weight management initiatives has been expanded in recent years.

Poor role clarity was considered to be a barrier impacting the MCMD model and has been elaborated in Chapter 5. Again, due to the wealth of data, only one discipline (medical practitioners) will be represented in full. The other disciplines will be summarised and presented in the conclusion for this section, but have also been detailed in Appendix L.

Medical practitioners

Attitudes regarding the efficacy of doctors working with obesity were mixed. Medically trained stakeholders (doctors and nurses) tended to support the inclusion of the medical discipline in weight management, as did SW (see Table 4.6). However, non-medical stakeholders, including the clients, and allied health professionals, excluding nurses, tended to question the use of general medical practitioners, as is indicated in Table 4.7. DR1 appeared to justify the stance of these stakeholders in her following comment: "People come to me for advice. We talk about being fit, not losing weight." Her comment endorsed earlier research that found that only 40% of obese patients received advice about their weight from their primary care physician (Abid et al., 2005).

Only one stakeholder mentioned a specialist medical doctor, C2. C2 consulted an endocrinologist who had publicised himself as a weight management specialist. His main strategy for assisting C2 to lose weight was to take appetite suppressants.

Table 4.6

Convergent Interview Data Supporting the Role of the Doctor.

Representative stakeholders
Doctors
• "I think we should do the multi-assessment (for obesity) with the GP" (DR1).
• DR2, said that doctors were "the first port of call" for assessing obese clients, and that they did it well.
Private Practice Psychologist (former nurse)
• "I think it's the GP who is the person who determines which way you send this (overweight /obese) person" (PP).
Social Worker
• "There is an overall need for more GPs working in this (eating issues) area" (SW).

Table 4.7

Convergent Interview Data Questioning the Role of the Doctor.

Representative stakeholders
Clients
• "I wouldn't go to the doctor for my weight. I don't think that he's an expert" (C1).
• "The GP did bits of it, but there wasn't really any follow through" (C2).
Dietitian
• "I don't think GPs have any skills on telling people what they could do with their food. It is a waste of time to get GPs to do this" (DN).
Health Epidemiologist
• "Doctors just don't have the time (for comprehensive weight assessments)" (HEp).
Exercise Scientist
• "An issue is GPs don't necessarily want to take on responsibility for screening overweight and obese people for exercise" (ES).
Nurses
• "GPs won't do it (comprehensive assessment for the overweight or obese)" (N1).

Triangulation of 'medicine as a discipline' with observation and the literature:

The only GP attending an observational session (refer to Appendix H Section H1.5) endorsed DR1 and DR2's belief that doctors should have a central involvement in a MCMD approach for weight management. However, a physician working in a MD weight management team disagreed, as did another GP working in independent private practice.

Tsai and Wadden (2009) examined RCTs of behavioural weight loss interventions in primary care settings. Their results indicated that GP counselling did not culminate in clinically meaningful weight loss. This has been attributed to barriers doctors face including: lack of education and training in obesity management (Forman-Hoffman et al., 2006); and, lack of time, reimbursement issues, and perceiving obesity treatments as less effective than treatment of other chronic health conditions (Foster et al., 2003). Other research has indicated that doctors have more interest in assisting their patients with weight management than do patients (Ruelaz, Diefenbach, Simon, Lanto, & Arterburn, 2007). However, this research also confirmed stakeholder client opinion (C1, C2 and observational data) that doctors do not have enough time to discuss weight issues. Further research conclusions drawn from the research of Ruelaz et al. (2007), was that patients did not find talking to their doctor about their weight helpful, and that doctors tended to blame the patient for being overweight. Scott et al. (2008) offered more process oriented solutions to create "healing relationships" between the provider and the client. Their research identified non-judgement and displaying care and commitment to the patient as fostering a healing relationship. This research endorsed comments made by both C1 and C2 about what they wanted in a weight management practitioner.

Summary of disciplines to be included in a MCMD approach

The NHMRC Clinical Practice Guidelines for the Management of Overweight and Obesity in Adults (2003) believed clinicians wanting to work with obesity "should seek assistance from health professionals in other disciplines with specialist knowledge in obesity management – including dietitians, exercise physiologists and, in difficult cases, specialist physicians" (p.58). The guidelines also referred to using GPs when the overweight or obese client had comorbidities that could be treated under Medicare-rebated treatment plans. These 2003 guidelines did not refer to any other health professionals. However, the more recent NHMRC obesity guidelines (National Health and Medical Research Council, 2013) demonstrated a marked expansion on the type of practitioners and disciplines that were recommended to be involved in MD teams for obesity management. These included: the disciplines already mentioned (dietitians, exercise physiologists, physicians and GPs), as well as surgeons, psychologists, diabetes educators, social workers, occupational therapists, physiotherapists, aboriginal and multi-cultural health workers, general nurses, practice

nurses and mental health nurses. The current research emphasised the role of the dietitian, psychologist, exercise physiologist and GP. The NHMRC (2013) obesity guidelines also emphasised these disciplines. Physiotherapists and nurses were given secondary emphasis in the thesis data. There was only cursory reference to occupational therapists, practitioners who practiced complementary medicine and bariatric surgeons. There was no reference to aboriginal and multi-cultural health workers, and mental health nurses. These trends in the thesis data reflected the stakeholder population from which data was drawn. As recommended by the NHMRC (2003) guidelines it is strongly recommended that any professional working with obesity undergo training or supervision with professionals who specialise in the area. Given that two in three Australians are overweight or obese (Australian Bureau of Statistics, 2013), there are likely inadequate numbers of professionals with the appropriate training in obesity to help address obesity prevalence. Furthermore, the complexity of obesity suggests that one profession alone cannot treat the condition. On the basis of this collective information, MD teams are indicated.

Convergence around dissatisfaction with current weight management programs (refer to Section 4.1.1.1) naturally prompted probe questions around what stakeholders believed would be better ways to address obesity management. The suggestion with the most support is presented below.

Client-focused, self-management approaches

Recommendations for client-focused, self-management approaches also emerged clearly from the interview data (see Table 4.8 and Appendix M for a more comprehensive overview of stakeholder comments). DR2 espoused a bio-medical approach. He did not refer to client-focused self-management approaches despite working with individual patients. HEp and PR also did not refer to client-focused and self-management approaches. HEp delivered online prescriptive weight management programs and PR worked in a research setting. The nature of these work settings likely explains why HEp and PR did not refer to self-management.

Triangulation with observational data.

Client-focused strategies such as self-management and self-empowerment were corroborated at a number of observational sessions (refer to Appendix H, Section H1.4, H1.5, H1.6, H1.9, and H2.1). One professional, a psychologist, endorsed self-management as follows:

- "I like the idea of letting the client be the person who tells you what they want. We actually have to listen and having listened, help them to reach some sort of a decision. Not make the decision for them. The more we can actually encourage people to believe in themselves, and believe in the choices they're actually making, the more committed they'll be to those choices and behaviours."

Table 4.8

Convergent Interview Data Endorsing a Client-Focused Approach for Obesity Management.

Representative Stakeholder Comments
Clients (C1)
• "Treat me as an individual. I want an individual program that suits me, my needs, my motivations, my issues" (C1).
Family Doctor (DR1)
• "Look at patients as people, how they operate with life and what they think they have some chance of actually doing."
Social Worker (SW)
• "We are person-centred. Interventions are directed by the person rather than the therapist's agenda. We empower clients to make informed decisions."
Community Health Nurses
• We promote self-management and client focus" (N1).
• "Let the client tell their story so they feel important and validated" (N2).
Medical educationalist (MEd)
• "Train the clinicians in the skills they need to help the patients self-manage."

Triangulation with literature

As outlined in Chapter 2, Section 2.4.3, new models of chronic care management promote self-management strategies. Examples include the Chronic Care Model (Wagner et al., 2001), the Institute of Medicine Report (IOM, 2001), and GP Team Management Plans (Department of Health and Aging, 2013). However, self-management principles, while promulgated, are not always understood by both practitioners and clients, or always adhered to by practitioners (Ham et al., 2012).

Summary

I was unable to find any disconfirming evidence for a client-focused, self-management approach in either the observational or the interview data. Overall, the stakeholder data supported the incorporation of a client-focused, self-managed approach with a MCMD approach.

Process Factors

Stakeholders presented numerous ideas for processes to be included in a MCMD approach. These can be found in Appendix N and will be incorporated during the implementation phase.

4.3 SYNTHESISING THE INFORMATION

4.3.1 Summary

The information presented in this chapter confirmed that the general consensus among practitioners involved with obesity management was:

- there was a prevailing disillusionment regarding the effectiveness of current weight management methods;
- a MCMD approach received strong support; and,
- new approaches should be client-focused with an emphasis on self-management and self-empowerment.

Analysis and interpretation of the convergent interviews generated the following outcomes.

- Three metacodes appeared to underpin a MCMD approach: client factors, practitioner factors, and process factors.
- The numerous nodal categories housed within each metacode demonstrated clear evidence of the complexity of obesity. This complexity supported the efficacy of developing a MCMD approach using action research methodologies.
- Recommendations were that the components of an obesity management approach should, at least, include psychology, nutrition and diet, physical activity, medicine, and environmental factors.
- The disciplines involved should be matched to the requirements of the client. The professionals referred to most frequently included: doctors, psychologists, dietitians, exercise physiologists, physiotherapists, nurses, and social workers. Professionals of other disciplines including occupational therapy, dentistry, podiatry, and natural medicine were also mentioned, but by only a few stakeholders.

4.3.2 Learning Outcomes

As stated by Stringer and Genat (2004), involving "users of the system" (practitioners and clients) as participants in solving a "real world" problem (obesity) was an effective way to identify practical and innovative approaches to tackling the perceived ineffectiveness of weight management strategies. By accessing the issues identified by "real world" stakeholders, I was better able to target the enormous literature on obesity. I realised the overwhelming complexity of obesity, why it was important to consult end-users in developing "real-world" approaches, and why a MCMD approach offered a cogent solution. In fact, I believe the data presented in this chapter fully justified why a "one size fits all" and "eat less; move more" paradigm has been too simplistic as an approach for a condition as complex as obesity (Frood, Matteson, Kirk, Penney, & Finegood, 2013).

As pointed out by a GP stakeholder and literature sources (e.g., Realpe & Wallace, 2010), the client has been an under-utilised resource in the delivery of health services. The clients reinforced how important the working alliance and factors like empathy, non-judgement, and understanding were in whether they remained during treatment. It was clear how important it is to access the client's experience to ensure that therapeutic interactions could respond dynamically to client needs. This led to the other learning outcome, which was the value of a responsive and dynamic methodology like action research for not only developing models but also for evolving them in response to new information and change. The information generated by stakeholders was so diverse that action research facilitated the inclusion of supplementary data sources to triangulate with the primary data. The advantage of triangulation was that it allowed me to consider other components not strongly emphasised by the stakeholders but still important. The most outstanding example of this was the impact of the obesogenic environment on the development and maintenance of obesity. Only HEp and DN referred to the impact of the obesogenic environment. It was the triangulation of their data with the literature that suggested that environmental factors were significant enough to be considered a metacode. This reinforced the advantage of using a methodology that responded to the client, the practitioner, the client-practitioner interface, the literature and other relevant data sources.

Chapter 5: Barriers and Solutions for a MCMD Approach to Obesity

5.1 OVERVIEW

In Chapter 4, a thematic analysis was conducted to explore stakeholders' perspectives on obesity management. The objective was to use the data collected to inform a MCMD approach to obesity management. Triangulation of multiple data sources contributed rigour by ensuring that a wide range of perspectives were referenced from diverse sources (Stringer & Genat, 2004). Based on interview data, three central themes crystallised: client factors, practitioner factors, and process factors. Triangulation with the literature introduced an over-arching theme, the obesogenic environment, in which the other three factors nested (see Figure 5.1).

Figure 5.1. Systems interplay for managing obesity.

5.2 BARRIERS TO A MCMD APPROACH

Learning outcome: I did not commence this inquiry with the intention of exploring and addressing barriers to a MCMD approach for obesity management. However, the data highlighted recurrent references to barriers for managing obesity, particularly from a MCMD perspective. The literature also reported persistent barriers to weight management (e.g., Atlantis, Barnes, & Ball, 2008; Briscoe & Berry, 2009; Loveman et al., 2011; Macdonald, 2007; Ruelaz et al., 2007). By way of example, Bonaventura (2008) believed that barriers to changing dietary behaviours that facilitate

weight loss were often underestimated. He attributed high relapse rates among those who had successfully lost weight to the discrepancy between the intentions of clients and their ability to change behaviour to achieve the intentions. Other researchers found that discrepancies between the weight loss goals of clients and practitioners also hampered long-term outcomes of weight-loss programs (Wamsteker, Geenen, Zelissen, Furth, & Iestra, 2009). This demonstrated that unless barriers were actively and responsively addressed the MCMD model would not be successful. Furthermore, given the inherently unpredictable nature of barriers to weight loss and maintenance, incorporating an inbuilt facility within the MCMD model to address barriers seemed to offer a practical solution. I determined that the dynamic and responsive properties of action research methodologies would allow both the practitioner and the client to problem-solve barriers as they arise. I believed that this responsiveness to prevailing circumstances could be an important differential point for the MCMD model.

Stakeholder Views on Barriers: Examples of stakeholder comments that attracted my attention to the importance of barriers in working with a MCMD model were as follows:

- "There will be different levels of barriers. There will be system barriers or there will be attitudinal barriers" (MEd).
- "The issue is how to get something that would either target an intervention which is actually of value to people or targets how to get the health professional team to work correctly. We couldn't get engagement from the doctors and the nurses couldn't understand the simplest stuff" (DN).

Barriers identified in the observational data. As mentioned above, a recurrent observed barrier that permeated MD meetings was a "silo" orientation among practitioners (refer to Appendix H, Section H2.1 and H2.3). This "silo" orientation likely contributed to the difficulty I experienced in managing practitioner groups to generate firm and collective strategies for a MCMD approach during MD meetings I facilitated or observed (refer to Appendix H, Section, H1.1, H1.3, H1.5, H1.6, H1.7, H1.9, and H2.3). Furthermore, there was poor participant commitment to ongoing attendance at some MD meetings (refer to Appendix H, Section H1.1). Subsequently, it was the dialectic between the iterative action research cycles of data analysis and

interpretation (from all sources), and consultation with the working party, that provided the platform on which I developed the MCMD model.

Conclusion: The cumulative data emphasised that it would optimise the success of a MCMD approach to obesity management if barriers were acknowledged and addressed on an ongoing basis. Barriers were identified for client, practitioner, process and environmental factors. The barriers identified during data collection confirmed the importance of developing a platform that would enable decentralised MD teams to successfully work together to achieve a common goal for an overweight or obese client. To the best of my knowledge, there does not appear to be another weight management model that intentionally and responsively addressed barriers in the literature.

A treatise of every barrier was beyond the limits of this thesis. Presented below are the barriers identified by stakeholders as the most crucial (see Table 5.1). They have been presented in the order of priority suggested by the data.

Table 5.1

Outline for Chapter 5 - "Barriers and Solutions for Working With a MCMD Approach".

Barrier/Issue	Metacode
1. Funding	Process Factor
2. Professional roles and boundaries	Practitioner Factor
3. Silo orientation	Process Factor

5.3 FUNDING (PROCESS FACTOR)

All stakeholders except PP brought up funding issues (see Table 5.2 for relevant examples).

All references to funding, bar two (C1 referred to self-funding only, DN referred to both government and self-funding), were in relation to the government either funding health promotion programs or offering rebates for services through the government health scheme, Medicare. The fact that only two stakeholders mentioned private funding as a barrier was unusual considering that a majority of stakeholders were in private practice. It contradicted my own experience in private practice. I

identified affordability as one of the most significant contributors to poor retention in weight management. Client retention rates are low both in practice and in the literature (Greenberg et al., 2009; Jeffery et al., 2000).

Table 5.2

Interviewees' Comments on Funding as a Barrier.

Representative stakeholders
Client • "I was really discouraged. I spent so much money and hadn't lost any weight" (C1). • "If governments offered better rebates for managing weight more people would try and lose weight" (C2).
Dietitian (DN) • "Nothing will work if you can't resolve funding; unless people are self-funding." • "The fear is that the size of the obesity problem is so great it will overwhelm the health system if you start funding it. I cannot see Medicare being expanded."
Doctors • "If you want to access the government-funded free or low cost services, you have to jump through incredible hoops. The administrative costs of getting patients five Medicare-rebated sessions are really high. GPs are going broke. They aren't paid to deal with obesity" (DR1). • "We don't know how to maintain the motivation of people without continuing to throw a lot of money at them long term. We know that you've got to continue to throw money at them for weight loss interventions to have continued success" (DR2).
Nurses (N1) • "Funding is always a barrier for us" (N1).
Social Worker (SW); Health Epidemiologist (HEp) • "We don't measure retention rate because of lack of funding."

N2 cautioned that "The lack of funding (government) is just an under-estimation of the problem. The issue is, once you admit there's a problem, you have got to do something about it." However, DN was sceptical of the government funding obesity interventions: "Federal governments don't have the resources to fund obesity." DN predicated her views on the following comment: "There is a political dimension to funding. It was a philosophy of the previous government that obesity is not a disease; it is your fault and therefore your problem. It is you who should pay. This is why obesity was deliberately left out of the Medicare system." A number of obesity experts confirmed that this has been a governmental stance (Brownell et al., 2010; Dixon & Broom, 2007; Harris et al., 2009; Stanton, 2011).

Funding limitations were noted in several areas in the literature including: the provision of healthy food in school canteens (Goh et al., 2009); affordability of weight management services, leisure facilities and healthy food (Greener et al., 2010; Jones, Furlanetto, Jackson, & Kinn, 2007); and the sustainability of childhood obesity interventions (Huang, Grimm, & Hammond, 2011).

Suggestions and Solutions Provided by Stakeholders to Solve the Funding Barrier.

1 Develop a Different Funding Model

DN advised, "You have to have a different funding model to get yours to work. There are two schools of thought. 'People don't value what they don't pay for,' is one school of thought. The second is, 'You can't make costs beyond the reach of the lower SES who have the higher incidence of the problem.'" Although the MCMD approach could be privately funded by users, funding would still be considered a barrier for lower socio-economic groups who have a higher incidence of obesity, particularly for women (Vernay et al., 2009).

DN warned that although the ongoing development of a MCMD approach could potentially be funded by a government grant, mismanagement of government funds could be an issue of concern. DN provided the example of a failed health promotion initiative she was associated with: "The biggest barrier was the funding model. They spent the money on developing the program and forgot about allocating money for implementation." Observational data supported the mismanagement of government funds as a barrier (refer to Appendix H, Section H2.3). The team leaders of a government health promotion initiative I gathered observational data from were new graduates. Their lack of finance and project management skills appeared to have contributed to the failure of their health promotion project. Oandasan et al. (2006) emphasised the fact that experienced leaders with high level administration skills are important in optimising team effectiveness.

DN suggested the funding for chronic health conditions with comorbid obesity could be funded by Medicare-rebated, GP Team Management Plans (Department of Health and Aging, 2013). However, she cautioned that these plans were limited to five sessions in a calendar year and required a GP referral. DN believed an ideal model would be for allied health professionals to refer to one another rather than consulting

a GP. She also believed, along with other stakeholders, that follow-up for weight loss should occur over a longer time period with more than five sessions.

2 Create a Cheaper Workforce Option

DN's idea was: "Instead of funding allied health professionals at enormous salaries to do work that is ineffective, we need to reengineer the workforce. Why do you need someone with a full time degree with all that practice to do something that is very technical in nature? The specialist to do this and a larger group of people helping - a psych assistant, an obesity assistant."

An exploration of the literature identified that DN's suggestion about reviewing workforce models has already been investigated. One study by Derbas et al. (2009) justified their exploration of auxiliary roles on the finding that less than half of primary care professionals routinely address weight management with their overweight and obese clients (Abid et al., 2005). Derbas et al. (2009) explored the concept of using non-medical professionals, which they refer to as auxiliary health professionals (AHPs). AHPs were advantageous in the fact that they had more time to provide weight management support for patients at a far lower cost. The researchers combined the services of the AHPs with medical care, finding that the treatment group had a clinically significant weight reduction (3.8kgs) at six months compared to the "usual care" group (0.3kgs). Derbas et al. (2009) believed that primary care professionals may be better placed to assess and treat obesity-related co-morbidities and have auxiliary staff conduct weight loss counselling. Their conclusions supported DN's ideas. Lending further support for the role of AHPs was a worksite wellness intervention for weight management that indicated a professional leader achieved no better outcomes than a lay group leader (Anderson et al., 2009).

3 Combining "Off-Line" Weight Management With "On-Line" Options

DN said, "If you had a self-assessment as part of the first stage of your program, I don't think the funding would be such an issue. You could get it onto the web. However, how you pay will always be challenging."

Internet-based weight loss programs have been investigated on behalf of their cost-effectiveness. One review reported positive results for weight loss in the short-term (Weinstein, 2006). However, an issue is maintaining engagement in on-line environments (An, Hayman, Park, Dusaj, & Ayres, 2009).

Conclusion

The solutions presented above showed merit. However, the consensus regarding the likelihood of the government funding individually-based obesity management programs, such as this MCMD approach, appeared bleak. Similarly, while re-engineering the workforce may hold value, it would also require government sanction and would take time to implement. This leaves internet-based and individually funded options as the most practical route to pursue in the shorter-term for a MCMD approach. There may also be an option to train lay people to support one another in weight loss initiatives. However, this will also require funding.

5.4 PROFESSIONAL ROLES, BOUNDARIES AND BIASES (PRACTITIONER FACTOR)

The reason I chose to focus on professional roles and boundaries arose from several stakeholders' comments. MEd explained that prior to developing his business in medical education he scoured the literature to find the best evidence for producing change. His search led him to the conclusion that "changing clinician behaviour related to better patient health outcomes." This finding is supported by work in psychotherapy (Duncan et al., 2009). In DN's case, she believed professional roles and boundaries, if not addressed, would be the most significant practitioner barrier in successfully implementing a MCMD model for weight loss. N1, the team leader for a community MD health and a team leader, TL, of allied health services for a government health region, agreed with DN. The following data provided further evidence that professional roles and boundaries were a barrier that would benefit from being addressed in the MCMD model.

5.4.1 Role Perceptions and Role Clarity

A representative sample of stakeholders was chosen to give a voice to the different professions and end-users that could be involved in a MCMD model for obesity management. Stakeholders reported divergent understandings of one another's roles, as well as professional biases. Again, due to the volume of data, only one profession (nutrition and dietetics) will be explicated in detail. The other representative professions will be summarised below, but are discussed in more detail in Appendix O. After presenting nutrition and dietetics, the remaining professions will be listed in alphabetical order.

Nutrition and dietetics

There were mixed attitudes towards dietitians. PP, SW, DR1, and C2 viewed the role of the dietitian as providing food and nutrition knowledge to clients lacking this knowledge. C2 endorsed this view. She believed ongoing consultations with a dietitian were redundant once she established her own nutrition knowledge base. C1 didn't agree. C1 viewed the dietitian as the weight loss expert who would cover nutrition, psychology, and exercise. However, observational data provided by six recently graduated dietitians supported C2's views. Examples of their claims are listed below.

- A PhD candidate who completed her dietetics degree in 2004 said that although her dietetics course addressed behaviour change, the behaviour change strategies referenced smoking, not obesity. She regretted not recognising the importance of the behavioural and counselling training she received during her course. These data converged with DN's contention that dietitians were not skilled in the counselling process because "the majority of dietetic students don't think they have to learn counselling skills" during their training.
- Another dietitian who graduated in 2012 said less than two weeks of her course was dedicated to training in obesity. Both DN, who had trained dietitians for 20 years, and a current lecturer in dietetics confirmed this figure. The lecturer justified: "It is a dietetics degree, not an obesity degree." She added that the training courses were constrained by Dietetic Association of Australia's directives. She confirmed that the first two years of the course were purely science. The science focus in dietetic training likely contributed to TL's reference to dietitians as "scientific technicians."
- A current dietetic student qualified that the current training course was focused on clinical dietetics in hospitals, and not private practice. This stakeholder said that there were extremely limited employment opportunities in clinical dietetics in hospital settings. She explained that private practice was left as one of few options for practitioners in her profession to take up employment. However, she did not believe newly graduated dietitians possessed the skill set to work in that area.

DN agreed with the sentiments of these dietitians and summarised that given the limitations of current dietetic training models in Australia, "dietitians can't possibly have any skills. There has been a focus on biochemistry. They need psychology. But, you just can't do it all. I think we need to recognize that dietitians are not the only people who can help with obesity. In fact, they have been unsuccessful because of their very narrow approach." Delahanty (2010) endorsed DN's view that "dietitians need to broaden their scope of practice" (p. 336). By way of example, the inclusion of psychological strategies, such as cognitive therapy, in dietetic interventions has been associated with lower relapse rates in the management of obesity (Werrij et al., 2009).

TL discussed her views regarding the limitations of a dietitian's practice. She recounted her observations of dietitians focusing on the protein and energy intake of hospital inpatients, but failing to address the practical reality of how to get the food from the client's plate or cup to their mouth. TL said, "The dietitians appear to assume another profession such as nurses would deal with these practical realities." She described the dietitians' work as a profession that "told" people what to do in lieu of collaborative problem solving. DN agreed, "Dietitians tell people what to do rather than help them to make the changes they need to make." DR2 did not see a reason to refer patients to a dietitian for weight management due to his belief that the evidence indicated that referral to a dietitian made no difference to weight gain or loss. This collective feedback identified the efficacy of modifying dietetic training to meet "real-world" needs.

N1 provided information that indicated conflicting attitudes by the dietitian in relation to her role in obesity management on a MD team. N1 as team leader lamented, "Obesity is a huge problem, and we have problems with the fact that the dietitians keep saying we won't see these (overweight and obese) people." N1 said the nurses subsequently ran the weight management program that was designed for overweight people. As the dietitians refused to consult with obese individuals because they saw no value in it, the obese clients were referred to the nurses' weight management program. To meet the needs of the obese clients, N1's MD team decided to create an obesity program. N1 said the dietitian self-appointed herself to the role of developing the program because she saw herself as the expert in the area of obesity." The dietitian asked the psychologist to assist her. I was permitted to observe a MD meeting to discuss the development of their obesity program. Although the dietitian elected

herself as the obesity expert, she was observed to have the least to say during the meeting held to discuss the obesity program.

Conclusion

Dietitians were more negative about their own training and role in obesity than the other practitioners providing data for this research. There was strong convergence among dietitians (observational and interview data) and stakeholders (N1, DN, DR2) about the limitations of dietitians on the topic of obesity management. Two significant barriers impacting on the role of the dietitian in obesity emerged. Firstly, dietetic students did not see the import of certain subjects during training because they were not aware how important these skills would later be in the workforce. Subsequently, they did not engage during training. This impacted their subsequent work performance. Secondly, the dietetic course did not give the dietitians the skill set they required to work in private practice, nor with obesity. Notwithstanding, dietitians received more training than other health-related professions in obesity. Based on their training and association guidelines, dietitians are the most appropriate practitioners to provide nutrition services for clients accessing a MCMD approach to obesity management (Dietitians Association of Australia, 2013). Australian dietitians also have access to their own best practice guidelines for treating overweight and obesity (Dietitians Association of Australia, 2012a). Canadian research found that 75% of dietitians believed they were the profession best trained to manage obesity (Barr, Yarker, R, & Chapman, 2004). However, Collins et al. (2006) concluded that it is difficult to evaluate the effectiveness of dietetic interventions due to the dearth of high quality studies and heterogeneity of study designs. Solutions for optimising the role of the dietitian in weight management could be:

- to include more training in both psychology and obesity in tertiary-level dietetic education programs (DN, TL, observational data from dietetic stakeholders) (Werrij et al., 2009); and,
- to ensure continuing professional development (CPD) of dietitians focused on process skills such as facilitating client engagement and self-management, as well as content (Grace, 2011; McGowan, 2012).

Dentistry

Dentists have expressed an interest in having a role in obesity management if dentistry can be linked to obesity (Curran et al., 2010). However, only the social worker (SW) who worked with clients suffering from eating disorders, referred to dentists. This outcome suggested that it will advantage dentists to increase awareness among other health professionals regarding the role of dentistry in relation to food and nutrition, eating behaviours (e.g., bingeing and purging, chewing), and obesity.

Exercise Physiologist

The role of the exercise physiologist was the least understood by stakeholders. Additionally, there was a tendency for referrals for exercise to be made to physiotherapists, rather than exercise physiologists. The best example was given by the general medical practitioner:

- "It seems to me what the exercise physiologist takes on as his capacity would be what I take on as my capacity. But I don't know. I've only been aware of them for about 12 to 18 months. I haven't actually ever referred anybody to them. I send my clients to a physio" (DR1).

ES was involved in tertiary training of exercise physiologists. She admitted, "We don't really train them yet as well as they could be trained." Addressing these issues could improve the functionality of exercise physiology services and encourage other professionals to refer to them.

Conclusion

Exercise physiology was the least understood of the professions based on stakeholder feedback. Based on the role confusion evident in the data, role delineation statements between physiotherapists and exercise physiologists appear to be indicated. Ideally, this information would be disseminated to other health professionals.

Based on information provided by Exercise & Sports Science Australia (ESSA), the role definition of exercise scientists and exercise physiologists (ESSA, 2013) positions them as the profession best suited to provide exercise advice for the MCMD model. Systematic reviews (Curioni & Lourenço, 2005; Shaw et al., 2009) have shown that diet combined with exercise results in greater weight loss than interventions with diet alone. Similarly, an intervention that combined behaviour therapy with exercise resulted in significantly greater weight loss than behaviour-only interventions for

weight loss (Perri, McAdoo, McAllister, Lauer, & Yancey, 1986). These studies confirm the role of exercise experts in weight management.

Medical doctors

Opinions regarding the role of the GP in MCMD obesity management were mixed (refer to Section 4.2.3 above). The doctors (DR1, DR2 and a GP who was present at an observation session – refer to Appendix H, Section H1.5) believed the GP was the best coordinator or primary care professional for a MCMD approach. The GP as coordinator has been the model established for Medicare-based funding of chronic disease (Department of Health and Aging, 2013). Other stakeholders (DN, HEp, N2, C1, and C2) were not supportive of the role of the doctor as either a coordinator or weight loss counsellor. Their reasoning included the doctors' lack of skills in relation to obesity management; time constraints and the impact of this on both facilitating connection and providing counselling. These justifications were supported by literature exploring barriers to obesity management in primary care (Forman-Hoffman et al., 2006; Foster et al., 2003; Scott et al., 2008). Furthermore, a review conducted by Tsai and Wadden (2009) concluded that current evidence did not support the use of low to moderate physician counselling in achieving meaningful weight loss. Notwithstanding, doctors will still be required to conduct the more advanced medical assessments for comorbid medical conditions such as diabetes and cardiovascular disease. Overall, the disparity between what doctors believe their role should be and what clients and other practitioners think the doctor's role could be clarified in the MCMD model to mitigate role conflict.

Naturopathy

Only one stakeholder representing the area endorsed the inclusion of complementary medicine professionals, CM. DR2 disputed the claims made by the naturopath, CM. DN did not believe naturopaths used a holistic approach, adding that they used non-evidence-based remedies. However, despite the lack of acknowledgement of the role of complementary research, the literature shows that evidence of the role of complementary therapies in obesity management is growing. Reviews have found promising roles for green tea catechins and acupuncture (Lovejoy, 2013); mixed oriental herbal medicines (Lovejoy, 2013; Park et al., 2012); chromium supplementation (Onakpoya, Posadzki, & Ernst, 2013); and calcium supplementation (Onakpoya, Perry, Zhang, & Ernst, 2011). The weight changes produced in these

studies was statistically significant, but small. Nonetheless, the majority of reviews listed above cited methodological or other issues that hindered firm generalisation of the research conclusions. Further research was recommended. Overall, complementary medicine practitioners remain excluded due to a lack of acceptance by more traditional professions, and a requirement for further research.

Nurses

Nurses were not acknowledged by stakeholders as having the potential for a direct role in weight management except by the nurses (N1 and N2) I interviewed and the MD team with whom they worked. However, nurses were nominated as likely candidates for the role of coordinating a MCMD approach or providing triage. Since N1 and N2 delivered weight management groups quite successfully, involving nurses in a MCMD approach would appear justified. The literature also supported the role of the nurse in MD teams working with obesity (Epstein et al., 2010; Rabbitt & Coyne, 2012). Again, role definitions and skill criteria for nurses working as members of a MCMD approach for obesity management are warranted.

Physiotherapy

Traditionally, the primary role of a physiotherapist has been to "assess, diagnose and treat people with movement problems caused by a wide variety of joint, muscle and nerve disorders" (University of Sydney, 2013). According to DR1, N1, and N2, referral to physiotherapists to enhance an overweight or obese patient's capacity to move should be recommended. However, DR, N1, and N2 also referred their clients to physiotherapists for exercise advice. N1 and N2 did this because their employing organisation did not employ exercise physiologists. Exercise prescription is not within the physiotherapist's role definition (Australian Physiotherapy Association, 2013). DN drew attention to the tension between the roles of exercise physiologists and physiotherapists. As identified previously, delineating the role of physiotherapists and exercise physiologists in the management of obesity is warranted.

Podiatry

The only person to mention podiatry as a profession to be included in a MCMD approach was a podiatrist attending an event where observational data was collected (refer to Appendix H, Section H2.3). The podiatrist believed most obese people should be referred to her for shoe assessments to prevent injuring themselves during physical

activity. Although only one podiatrist provided feedback, her opinions were relevant and supported by the literature. For example, a systematic review concluded that increased BMI is strongly associated with non-specific foot pain and plantar heel pain (Butterworth, Landorf, Smith, & Menz, 2012). Notwithstanding, further consultation with podiatrists will be required to confirm the role of podiatry in a MCMD approach to weight management. If confirmed, disseminating information regarding the podiatrist's role in weight management to other health professionals will be important as none of the current stakeholders endorsed their role.

Psychology

As pointed out in Section 4.2.3 only C1 and the two doctors who were interviewed (DR1 and DR2) did not report supporting the inclusion of a psychologist in weight management. However, other doctors and clients strongly supported the role of the psychologist. The literature was also considerably supportive of the involvement of psychologists in weight management (e.g., Bogle & Sykes, 2011; Grossniklaus et al., 2010; Lillis & B., 2008; National Health and Medical Research Council, 2013). Based on the overall consensus of opinion from stakeholders and the literature, the psychologist's role was not deemed to present a significant barrier for a MCMD approach.

Social workers

Social work was only mentioned by three stakeholders (SW, DN, and N1). Each stakeholder envisioned a different role for social workers. N1 believed social workers worked well with weight loss groups. DN reported that social workers were often members of MD teams and were one of the professions suitable to be coordinators. SW actually worked one-on-one with female clients who had eating issues and eating disorders. Reference to the literature indicated that the systems orientation and strengths-based perspectives social workers are trained in augured well for the inclusion of social workers in MD teams working with obesity management (Eliadis, 2006; Lawrence, Hazlett, & Hightower, 2010). However, the lack of acknowledgement regarding the role of social workers by other stakeholders suggested they are a profession not commonly associated with weight management.

Summary

The above data indicated that inadequate knowledge of the various health professionals' roles in weight management was a barrier for implementing a MCMD model for obesity management. The silo mentality observed among stakeholders likely amplifies these barriers (McNair, 2005). None of the stakeholders, apart from N1 and N2 who worked in a MD team, had undergone training in how to work as part of a team. Research has shown that when MD members are taught how to work more effectively in a team environment, better collaboration among professionals and increased patient participation and empowerment has resulted (Chan et al., 2010). The MCMD literature I reviewed in Chapter 2 did not indicate that role definition and boundaries were addressed in MCMD research studies (e.g., Kelly & Melnyk, 2008; Loveman et al., 2011; Woolford et al., 2011). There was an absence of models or frameworks to ensure multiple professionals worked effectively together. Poor role clarity and team issues have been known to have an impact on team performance (Dick, 1991). Clarifying barriers inherent in the *practitioner factor, roles and boundaries*, is likely to contribute to better outcomes for the client. Possible solutions to address these barriers are provided in the final chapter.

5.4.2 Cross-Disciplinary and Auxiliary Roles

In addition to discipline specific roles, there are functional roles in a MCMD approach that are not discipline specific. This includes pre-screening and triage roles, and coordination roles. There was no clear agreement as to who should perform these roles, making it a potential barrier to be addressed. DN also identified the potential for auxiliary roles created by re-engineering the workforce. These roles are discussed next.

Triage and initial or pre-screenings

Pre-screening is "to examine or interview before further selection processes occur" (Farlex, 2012). Triage follows from this and is "a process in which things are ranked in terms of importance or priority" (Farlex, 2012). Stakeholders did not make a clear delineation between pre-screening and triage. Additionally, there was no consensus regarding who should perform initial screening or triage roles or what processes should be followed. Sample comments are presented in Table 5.3.

Summary for triage and pre-screening:

Although triage has traditionally been a nursing role, N1 challenged: "I don't necessarily believe that triage is particularly a nursing role." The data supported either a nurse or any primary care professional performing triage. Notwithstanding, both DN and HEp identified that funding issues would determine who would be best placed to conduct triage and pre-screenings.

DN suggested "the patient could self-identify in the waiting room using self-evaluation and bring this to the doctor's attention or be evaluated by the nurse." However, she qualified that a barrier for the patient self-assessing and being screened by the GP was "when you go to a GP you are usually not well; you are not ready to attack lifestyle issues."

Table 5.3

Stakeholder Opinion on Who Should Conduct Triage and/or Pre-Screenings.

Representative Stakeholder Opinion
Who should perform pre-screening or triage
• "A triage nurse or a practice nurse with triage tools" (DN). • "Nurses can perform triage assessments" (ES). • "A GP or nurse is the most appropriate professional to perform triage" (PP). • "I think all professions can be involved" (N1). • "The first professional the obese patient consults should conduct the screening and triage process" (PR). • HEp agreed triage was the best place to start a MCMD approach but did not specify who should do it. • DR1 and DR2 believed medical practitioners should perform initial assessments. • C2 was comfortable with non-specialists performing screenings and basic assessments but preferred the specialist to interpret results.

Coordinator role

There was no consensus as to who should coordinate a MCMD approach (see Table 5.4). While the options were similar to those offered for pre-screening and triage, an interesting deviation occurred when a client providing observational data disclosed that he had coordinated his own team. He explained that he wanted a team that included the endocrinologist, diabetic educator, dietitian and psychologist. Due to the lack of

coordinating role, he said he took on the role himself. Notwithstanding, self-coordination was not his preferred option.

Summary

There are clearly mixed perceptions about roles and boundaries that could be clarified in a MCMD approach. The advantage of using an action research methodology as the underlying process model for a MCMD approach is that participative processes are assumed. Therefore decisions about pre-screening, triage, and coordination can be collaboratively decided. Since the client-practitioner fit has been associated with both retention (Sharf et al., 2010) and therapeutic outcomes (Taber et al., 2011), allowing the client to be involved in decision-making regarding roles would appear warranted.

Table 5.4

Stakeholder Opinion About the Coordinator's Role.

Representative stakeholder opinion
• "A nurse would be the best team coordinator because they are cheap and plentiful" (PP).
• Doctors (e.g., DR1, DR2) believed the GP should coordinate the patient's management.
• "Any professional involved in one on one treatment with the client could be involved in coordination" (N1).
• "If an integrated health model was used, any team member could be the coordinator. However, the best case managers would be those from the holistic professions including nurses, occupational therapists, social workers, dietitians, or psychologists" (DN).
• "Professions who took a more holistic approach such as a psychologist, social worker or occupational therapist would be the best coordinators" (DN). DN added that if a dietitian had a high level of interpersonal skills they could also perform a coordination role.
• "The professional who has the most work to do with that person should coordinate" (TL).
• A client said he coordinated his own healthcare team (observation).
• A client said it would assist her medical and weight management if her treating professionals actually coordinated her care (observation).

Solutions

Very few stakeholders offered solutions for screening, triage, and coordination. However, the solutions that were offered are listed below.

- DN suggested that if Australians had a yearly check-up, a MCMD screening and triage could be conducted then. She described this as a proactive model in comparison to the current "reactive" health system in Australia wherein

people only consult doctors when they are ill. DN suggested that a GP could perform a multidisciplinary (MD) screening and triage using a long consultation code.

- In the event that practitioners are not funded to perform coordination, client based coordination may be an option.

Generic guidelines for triage, pre-screening, and coordination will be required for the final MCMD model.

Re-engineering the workforce – auxiliary roles

DN offered the innovative solution of re-engineering the workforce to address both the cost of health services and decisions about pre-screening, triage and coordination (refer to Section 5.3, solution 2).

No one else offered the solution of re-engineering the workforce as a way of providing cost effective services for obesity management. DN's singular idea was included due to its previous exploration in the literature, and because new ways of thinking about obesity management appear to be indicated.

5.4.3 Interdisciplinary Boundaries

PR highlighted a major barrier confronting a MCMD approach to obesity management. "I think what might be missing in a multi-disciplinary approach is the coherence between the disciplines" (PR). Teams would benefit from being trained in how to work together (Dick, 1991). Health care teams would also benefit from having a better understanding of the roles and role boundaries of the professionals working in the team (Oandasan et al., 2006).

As indicated in Section 5.4.1 above the varying perceptions professionals have about one another's roles and role boundaries appears to have created a major barrier in itself. TL emphasised, "because of skill sharing among the disciplines there needs to be conversations about the delineation of roles." DN bore testament to this when referring to the tension that existed between two professions that both work in the physical activity arena - exercise physiology and physiotherapy. Another example was the tension between psychologists and dietitians. An excerpt of an email from a dietitian is presented below.

- "Psychologists frequently barrel along giving nutrition advice at weekly meetings. Frankly I'd like them to back off and use their ample skills to help manage the distress and anxiety around eating. The completely daft thing about them doubling up on our work is that if the patient has a mental health care plan then all the money gets gobbled up doing nutrition stuff when the patient/family could be using the EPC supported dietitian visits for that. It is neither cost effective nor using the skills of each professional most effectively."

The controversy emanating from this dietitian's role conflict with psychologists culminated in a DAA role statement for dietitians working with eating disorders (refer to Appendix P). However, there did not appear to be a role statement delineating the different roles between psychologists and dietitians.

Examples of further role conflicts included:

- DN discussing how inappropriate it was for GPs to be giving food and nutrition tips;
- PP providing nutrition and exercise advice in her role as a psychologist: "I say to my clients, 'I am going to teach you how to eat regular healthy meals and do some exercise'"; and,
- TL explaining that some professions are resistant to another profession coordinating a patient's treatment or trying to manage them as part of a MD team. TL further added that identifying who would be the best leader in the team was also often a challenge.

Solutions for Clarifying Roles & Boundaries

SW was the only interviewee who actively and purposefully endeavoured to coordinate the inclusion of other service providers. Her approach included developing agreements to clarify roles and professional boundaries.

When N2 was asked how they maintained boundaries among the professions they worked with, they said they depended on "professionalism." N2 said their team leader provided training on the various roles in the team and the importance of observing role boundaries. N1, the team leader, disclosed that she tried to recruit and select team members who were well versed in MD perspectives.

DN believed that specialist services should be conducted by discipline-specific professions. However, like SW and TL, she pointed out that "boundaries will blur." She said, "I think there are common competencies at each boundary point. I think it is about professionals needing to be clear. You could look at the medical model. GPs know they can work to a certain level and beyond that they have to refer to a specialist."

To address boundary issues, TL recommended creating a reference guide delineating the roles of the different professionals in a MCMD approach to obesity management. DN pointed out that the Dietetic Association of Australia (DAA) has two role delineations. These are listed below.

- The collaboration of exercise physiologists and dietitians in chronic disease management (DAA & AAESS, 2008).
- The role of credentialed diabetes educators and accredited practising dietitians in the delivery of diabetes self-management and nutrition services for people with diabetes (DAA, 2008).

The format used for these joint position statements could provide models of collaboration for a MCMD approach to obesity management (refer to Appendix Q).

5.4.4 Professional Attitudes

Professionals' attitudes towards clients, other practitioners and weight management emerged as another barrier that will impact the success of a MCMD approach. Examples are listed below.

Attitudes about other professionals. DR1 admitted to having "a few favourite physios and a few favourite podiatrists, and a dietitian that was an integrative person" that she referred patients to. Such trends could lead to referrals being based on who is in the practitioner's network and not necessarily which practitioner is the "best fit" for the patient.

Attitudes about obesity management. I attended a meeting held at my university titled "Clinical Monitoring: An Evidence-Based Approach" (10.08.10). When asked if he monitored weight, the speaker, a former GP now working in research, said he saw no purpose for monitoring weight unless it was to help manage congestive cardiac failure. This medical researcher's views confirmed the finding by Foster et al. (2003)

that practitioners viewed obesity treatment as less effective than treatment for other chronic conditions. The researcher's comments were also consistent with DR1 and DR2's views. DR1 reported not addressing weight with her patients. She described weight as "a side issue." DR2 simply believed that, in general, patients had no interest in losing weight. These results verify previous research confirming that not many primary healthcare professionals discuss weight with their patients (Forman-Hoffman et al., 2006). A commonly cited reason as to why doctors find discussing obesity with their patients challenging is limited training in obesity management (Alexander et al., 2007; Forman-Hoffman et al., 2006).

Lack of collegial professionalism. I contacted the treating psychiatrist of a client with disordered eating on two occasions without eliciting a response. The psychiatrist's lack of communication caused the client more anxiety. This experience highlighted the importance of making explicit agreements with decentralised treating teams as a way to optimise treatment outcomes.

The practitioner's role is to "tell" the client what to do. During a session on 31.3.11, a wheelchair bound client related that she had consulted her psychiatrist and he had "told" her to lose weight and move more. The psychiatrist did not ask my client what she had done in relation to her weight or query her about activities she could or couldn't do. Furthermore, my client said he did not provide weight management advice and did not refer her to anyone for weight management. My client had been in a motor vehicle accident and could not walk due to inflammation and oedema in her legs. She also suffered from fibromyalgia and severe chronic pain. My client said the psychiatrist was overweight himself but showed no empathy towards her or her circumstances. This outcome could reflect the psychiatrist's lack of training in obesity. Lichwala-Zyla (2008), in a study exploring psychiatrists' perceptions and practices around weight management, found that 75% of her sample (n=231) believed their training in obesity was inadequate.

Another client of mine was "told" by her doctor to lose weight. My client had a fatty liver, hernia, and other medical conditions. Neither this doctor, nor the psychiatrist referred to in the paragraph above, conducted any of the assessments DR2 said doctors routinely perform on patients with health concerns related to weight gain.

C2 also emphasised that other people "telling" her to lose weight did not work. She openly admitted, "There are no external forces that could make me change. It's

my decision." As elaborated by MEd: "The GP sets the treatment plan, tells the patient what to do and the patient never comes back."

Lack of empathy towards the client. C1 and C2 both admitted to discontinuing services with professionals they believed did not have empathy or with whom they did not connect. C1 emphasised: "I just want somebody to be empathetic. To be understanding. To sit there and take the time to really listen; not be judgmental. Encouragement, empathy and kindness. That's all." The majority of professionals (N1, N2, SW, DN, MEd, ES and PP) interviewed mentioned the role of empathy in influencing outcomes. Of those professionals who did not refer to empathy, CM, HEp, and PR did not work with clients, DR1 and DR2 did.

Grace (2011) endorsed the role of empathy in the following statement: "The practitioner's interpersonal skills are central to treatment outcomes and merit regular review and comprehensive training. The ability to express empathy is a key" (p. 13).

There is a possibility that the lack of empathy projected by health care professionals is due to burn out. A psychologist providing observational data (see Appendix H1.5) asked: "How do we start to educate people about eating if the endocrinologists, the psychologists, the general practitioners or psychiatrists are becoming disillusioned with their jobs of caring?" Certainly research indicates that primary health care professionals do not believe their patients will lose weight even if they provide advice (Alexander et al., 2007; Dolor et al., 2010).

Bias and barriers towards overweight and obese people. Bias towards obese clients has been reported in social workers (Dennis, 2006), dietitians (Aphramor & Gingras, 2009), doctors (Foster et al., 2003), dietetic students (Puhl, Wharton, & Heuer, 2009), and trainee dietitians, doctors, nurses and nutritionists (Swift, Hanlon, El-Redy, Puhl, & Glazebrook, 2013). The impact of bias towards overweight and obese clients on the client-practitioner relationship has led some researchers to recommend raising awareness about the issue (Hansson, Rasmussen, & Ahlstrom, 2011).

Attitudes towards MCMD approaches. Provider attitudes to a MCMD approach and assessment can also be a potential barrier. Examples of opposition are listed below.

- DR1 qualified that she regarded the process of "fragmenting care and having the nurse do a little bit then having it handed over to the doctor" as "a flawed

model." She believed that patient consultation with the nurse first would impact the doctor's ability to establish rapport with the client. Furthermore, she believed the process may also lead to the patient telling the nurse information they were then reluctant to repeat in the medical consultation.

- A client providing observational data complained, "There is too much in medicine of going to one person for one thing. You need someone to talk about the whole journey. Medical doctors need to go the extra mile and look beyond the physical and look at the psychological."
- DN warned about practitioner roles being too compartmentalised. "There may be people who don't mind seeing 10 professionals and there may be some people who would find it overwhelming and would rather have one person, like a case manager." Her view was supported by the clients interviewed. As previously noted, C2 preferred a MD approach to weight management; C1 wanted an individualised program managed by a dietitian.

Before engaging practitioners in a MCMD approach, it is important to gain their support for a MD approach. For example, it was CM's belief that "GPs won't do it (a MCMD assessment)." DR2 reinforced this belief when he voiced his lack of support for MCMD assessments believing I was "overcomplicating a simple issue." Similarly, DR1 asked, "Why do you need an assessment apart from maybe a baseline for the patients themselves to give some idea of progress?" However, once a MCMD approach was explained to DR1, she said that was what she referred to as an integrative approach. DR1 was supportive of an integrative approach. Her response highlighted the importance of shared language.

Like DR1, Bammer (2005) believes that integrated approaches are the way forward for addressing complex societal issues. However, as found in the current research, Bammer highlighted barriers to implementing integrated interventions. These included:

- "disciplinary and sectoral silos, reinforced by dominant institutional structures, assumptions and reward systems" (p. 3);
- fragmentation of research efforts; and,

- acceptance of barriers that appear "too hard" to deal with because they are politically embedded or culturally sensitive, instead of actively addressing them.

These barriers are relevant to the MCMD approach in development. A number of solutions offered by Bammer (2005) that are germane to the current research were: strengthening the intellectual basis of MCMD or integrated approaches by promoting collaboration between researchers and practitioners and embedding integrated programs in universities. McNair (2005) also emphasised the benefit of challenging existing attitudes and improving inter-professional relationships.

5.4.5 Silo Mentality

While "silo mentality" could be construed to be a "professional attitude" it was emphasised as such a significant issue that I have awarded the issue its own section.

A current challenge confronting healthcare and a MCMD approach is achieving integration and collaboration among the disciplines providing services to the client (Kreindler et al., 2012). The barrier created by silo mentalities across disciplines, sectors, and institutions is well recognised in healthcare. McNair (2005) believes, "A silo approach to education; distinct professional codes of ethics; and the drawing of boundaries around uni-professional knowledge, all undermine respectful awareness of knowledge and skills of other disciplines and fuel interdisciplinary rivalry" (p. 3). Acknowledgement of the "silo mentality" by stakeholders in the current research was captured in the following statements:

- "Clinicians have a solo mentality" (MEd). MEd attributed this to clinicians "feeling threatened";
- "You see some people who just sit in their discipline and feel like they shouldn't be on a multi-disciplinary team. It's the person who's really about the multi-disciplinary team and sees the value in the multi-disciplinary team rather than being in a discipline specific team that you need" (N1);
- DN warned about practitioner roles being too compartmentalised;
- DR1 reiterated DN's view, "The fashion with fragmenting care is a flawed model"; and,
- "I don't know how to work outside my own silo" (PP).

Kreindler et al. (2012) argued that "The success of health reform stands on the ability of delivery system reform to replace fragmentation and waste with coordination and cost-effectiveness." (p. 348). Bammer (2005) believes strategies to achieve an integration and collaboration across "silos" must target the micro level of inter-professional teams and the macro level of healthcare organisations. However, Oandasan et al. (2006) do not believe there are theories regarding what causes cross-silo relationships to thrive or die.

As far back as 1988, the World Health Organisation (WHO) began working with the concept of multi-professional education as a means to enable different disciplines to work together to meet client needs (World Health Organisation, 1988). McNair (2005) recommended building on the work of WHO in a move to "break down the uni-disciplinary silos and help to create a more effective workforce" (p. 8). She believed inter-professional education (IPE) and inter-professionalism should be core subjects in the training programs for healthcare professionals. She gave the example of the UK offering a generic undergraduate course for healthcare providers for this purpose. McNair described how the World Health Organisation (1988) identified core competencies for effective teamwork, including a clear understanding of:

- the team's purpose and responsibilities;
- role definitions and boundaries, including clarity and agreement around shared roles as well as individual roles;
- the knowledge and skills expected from the different professions;
- team processes that promote working together ;
- collaborative problem-solving of barriers to care;
- learning by doing (practice-based evidence); and,
- value-based behaviours that optimise team functioning and client interaction, for example, respect, empathy, openness, cooperation, and integrity.

These core competencies would appear to merit inclusion in future health care training programs at both the undergraduate and postgraduate level. The "learning by doing" approach promulgated by WHO (1988) is consistent with the action research approach being used to evolve the MCMD approach.

5.5 SUMMARY AND CONCLUSION

DN believed the two major barriers I would encounter in implementing the MCMD model would be associated with funding and the roles and boundaries of practitioners. Accordingly, these were the two main barriers that I addressed above.

The National Institute for Health and Clinical Excellence (NICE) position paper on obesity recommended multicomponent (MC) approaches for obesity management provided by well-trained practitioners with the requisite competencies in obesity management (National Institute for Health and Clinical Excellence, 2006). However, the position paper did not outline guidelines on what the competencies for these practitioners would be. The review of the literature identified that dietitians were the discipline most likely to disseminate best practice guidelines for obesity management by dietitians (American Dietetic Association, 2012; Dietitians Association of Australia, 2012a; Grace, 2011; The British Dietetic Association, 2011). However, most disciplines believed they had a role in obesity management including psychology, social work, exercise science, and medicine. This highlights the benefit of developing MD practice guidelines for obesity management and discipline specific training. The material presented above also emphasised the likely benefit of addressing practitioner barriers, particularly negative views of overweight and obese clients by practitioners. Hansson et al. (2011) suggest that this bias towards clients has the potential to impact the client-practitioner relationship.

Numerous barriers to a MCMD approach were reported, but due to space constraints only two barriers could be presented. These two barriers related to *practitioner* and *process factors.* I assigned other process barriers and the obesogenic environment as a barrier to Appendix R. Although *client factors* were not elaborated upon, their importance is acknowledged. A Cochrane review that investigated which interventions would improve the management of diabetes found that only targeting practitioners behaviour did not alter patient outcomes unless accompanied by interventions also targeting the patient (Renders et al., 2001). A further study exploring GPs' and nurses experiences working with obese patients in primary health care supported the finding of the Cochrane review (Hansson et al., 2011).

5.6 LEARNING OUTCOMES

Barriers will be an inevitable encounter in the development, implementation, and ongoing refinement of this MCMD model for obesity management. The barriers will relate to each layer of the model – client, practitioner, processes, and the environment. Therefore, incorporating a facility in the model to responsively and dynamically address barriers will be paramount.

DN's advice that I address funding and practitioner barriers first, appeared to be justified by the data presented. It is defensible to address practitioner barriers before addressing client barriers as it is assumed practitioners will be assisting clients to address client barriers. However, as reported in the research, I acknowledge that once people establish a particular view it is difficult to change that belief (World Health Organisation Collaborating Centre, 2004). Based on the data, models of collaboration are required to address potential role and boundary issues in implementing a MCMD approach (refer to Appendix Q).

Another significant learning outcome was the paucity of training in obesity across the disciplines. The lack of training belies the breadth of the problem outlined in Sections 1.2.1 and 1.2.3. To optimise obesity management outcomes, practitioners would benefit from more training in obesity (Forman-Hoffman et al., 2006). Furthermore, given the silo mentality identified as a process barrier for MCMD initiatives (Ham et al., 2012), inter-professional education (McNair, 2005), or training in how to work in MD teams (Chan et al., 2010) would also benefit practitioners working with obesity.

Chapter 6: Bringing It All Together

Insanity: doing the same thing over and over and expecting different results

Albert Einstein
US (German-born) physicist (1879-1955)

6.1 A REMINDER OF THE RATIONALE FOR THIS THESIS

Obesity is a chronic relapsing condition that has been resistant to resolution through non-surgical treatment approaches (Stubbs et al., 2011). To date, both individual and population-based approaches for curbing obesity have been unable to reverse obesity prevalence (Australian Bureau of Statistics, 2013; Greener et al., 2010). This problem underpinned the thematic concern for this research. In order to address the thematic concern about the general failure of current weight-loss approaches, this thesis research aimed to evolve a MCMD approach for obesity management using an action research methodology. As my own practice has been predominantly focused on individual clients in clinical settings and because I wanted to improve my own practice, the focus of this research was on individual weight management practice. Although I took an individual approach to obesity management, I viewed individual and population approaches to obesity management as complementary. The obesogenic environment was identified as part of the cause for obesity by the literature (e.g., Swinburn et al., 2011) and by stakeholders (e.g., DN, HEp, DR2). Accordingly, it follows that an individual may most likely change if the environment is first changed. However, the literature suggested that changing the obesogenic environment was not feasible (Brownell et al., 2010; James & Rigby, 2010). The efficacy of taking an individual approach for me was not only was it how I practiced, it was what I had access to. I did not have access to the levers that could influence political decisions that in turn, would impact the obesogenicity of the environment. Notwithstanding, I do believe that the MCMD model developed during this thesis research does have promise to impact on the microenvironment (discussed in Conclusion Five below).

The intention of this thesis research then was to source problems and solutions reported by researchers, educators, policy influencers, practitioners, and clients to co-

produce a MCMD approach. I wanted to provide a generic process for the approach that had the potential to be applied to a number of delivery platforms ranging from research settings through to multidisciplinary (MD) clinics and sole practitioner situations.

This chapter integrates the information generated during this inquiry into preliminary conclusions and models on which to base a MCMD approach to obesity management. This chapter also presents recommendations, limitations, and future directions. The approach in development is based on the sum total of the data collected during this thesis research. The model is notional and will require ongoing modification during the implementation phase (post-thesis).

6.2 CONCLUSIONS

A summary of the understandings, frameworks, and processes that I have elected to base my MCMD approach on are outlined in the following conclusions.

Conclusion One: Complex solutions will likely offer the best approach for a complex condition like obesity.

Conclusion Two: Obesity is a multi-system condition that may therefore best suit a systems approach.

Conclusion Three: Dynamic and responsive methodologies like action research appear to lend themselves to the management of a complex condition like obesity.

Conclusion Four: Environmental drivers appeared to be the least acknowledged component of a MCMD approach.

Conclusion Five: Individual approaches currently have the potential to influence the micro-environment of the client.

Conclusion Six: Emphasising the role of the practitioner, as well as the client, may optimise obesity outcomes.

6.2.1 Conclusion One: Complex solutions will likely offer the best approach for a complex condition like obesity.

The factors that are responsible for spawning and maintaining the obesogenic environment are complex. They range from having a readily available and expanded food supply, enabled by technology innovations and economic progress (Bleich et al.,

2008), to marketing strategies aimed at increasing and legitimising consumption (Blundell & Finlayson, 2011; Smith, 2007; Swinburn et al., 2011). Technological and economic advancements that reduce energy expenditure, such as cheap transport and task outsourcing like gardening and cleaning, have also contributed to the obesogenicity of our environment (Broom & Strazdins, 2007). Furthermore, time constraints have created a dependence on convenience foods with short preparation times (Ulijaszek, 2007). Access to these convenience foods has been facilitated by the emergence of a supermarket society and the explosion of fast food outlets (Stanton, 2006). The proximity of fast food restaurants and convenience stores to people's homes has been shown to further increase the risk of obesity (Spence, Cutumisu, Edwards, Raine, & Smoyer-Tomic, 2009). Takeaway and convenience foods are often energy dense and nutrient poor. The low cost of these foods has increased their consumption (Finkelstein et al., 2005), and larger portion sizes have further increased energy intakes (Duffey & Popkin, 2011). Other issues of concern include: increased access to and consumption of alcohol (House of Commons, 2004; Lourenço, Oliveira, & Lopes, 2012); a socio-cultural food focus (Blundell & Finlayson, 2011; National Heart Lung and Blood Institute, 2004; Power, 2012); eating for psychological reasons such as for comfort (Levitan & Davis, 2010) or to relieve boredom (Garaulet et al., 2012); obesity as a side effect of some pharmaceutical drugs (National Health and Medical Research Council, 2003b); and the impact of chemicals in our environment on obesity (Desvergne, Feige, & Casals-Casas, 2009; Hatch, Nelson, Stahlhut, & Webster, 2010; Tremblay, Pelletier, Doucet, & Imbeault, 2004).

The root cause of obesity has been described as an imbalance between energy intake and expenditure. However, the data collected during this inquiry indicated that this energy balance is far from simple. The multi-systemic complexity of obesity means that multiple factors affect energy imbalance. In support of this conclusion, stakeholders unilaterally concluded that a "one size fits all" approach will be unlikely to work for weight management.

DR2, DN, and ES provided comments that support those authors who have described the government's impotency in reversing the obesogenicity of the environment (Brownell et al., 2010; James & Rigby, 2010; Stanton, 2011). As noted by DR2, C1 and C2, as well as numerous clients who have consulted me over the years, the majority of the various "diets" or weight loss approaches that are available have

proven successful. These sentiments about weight loss diets are supported by the evidence demonstrating that macronutrient distribution does not impact on a person's ability to maintain weight (Avenell et al., 2004a; Delbridge, Prendergast, Pritchard, & Proietto, 2009) and commercial diets have not led to long-term weight loss (Mann et al., 2007; Tsai & Wadden, 2005). Such findings mean that the promotion of "high protein-low carb" or "low fat-high complex carb" diets is likely inefficacious.

Bariatric surgery is a method backed by one of the strongest evidence bases for achieving weight loss outcomes (Proietto, 2011; Zimmet et al., 2011), but the costs are prohibitive. Further study is also required to confirm the long-term benefits, risks (physical, social and psychological), and the ultimate cost-effectiveness of the various bariatric procedures (Padwal et al., 2011). A client providing observational data agreed with DR2's statement that bariatric surgery removes choice. This client had undergone a bariatric procedure herself and concluded that the procedure did not solve the issue. She ultimately had her procedure reversed and has successfully lost weight using non-surgical methods. Another client providing observational data reported developing serious health complications as a result of bariatric procedures. This client believes that bariatric surgery has irrevocably ruined her life. While this may be a small and unrepresentative sample of stakeholders, their comments do highlight the potential disadvantages of bariatric procedures and importance of further research.

The complexity of the causative and maintaining factors for obesity suggest that it is important that assessment procedures have the potential to assess a broad array of causative factors, thus allowing interventions to be tailored to the individual (Egger, Binns, & Rossner, 2008; Enwald & Huotari, 2010; Ford & Mokdad, 2008; National Health and Medical Research Council, 2012b). Additionally, due to the changing needs and circumstances of the individual over time, any intervention will benefit from having the capacity to be adjusted in an ongoing manner (Jakicic et al., 2012).

The Foresight Report (Aylott et al., 2008; Vandenbroeck et al., 2007) confirmed the complexity of obesity. The researchers used qualitative modelling to explore variables associated with obesity. The complexity of interactions was so vast that they were summarised into the thematic clusters presented in Figure 6.1.

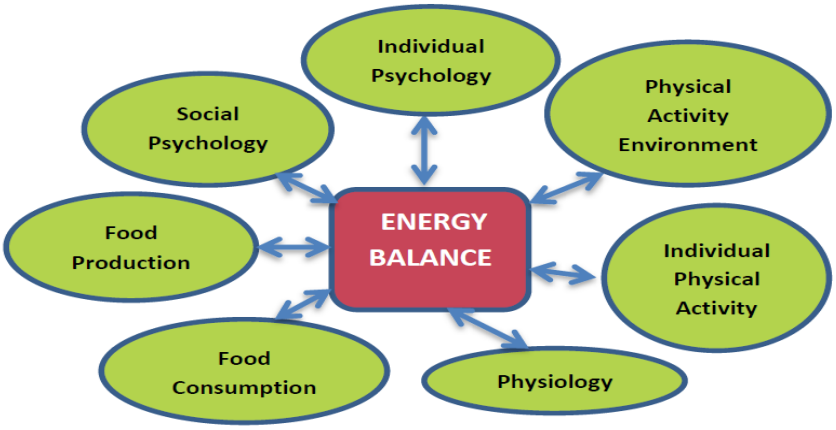

Figure 6.1. Foresight map clusters (adapted from map 5, Butland et al., 2007).

After concluding my own qualitative analysis of the data, I recognised that I had used reductionist processes similar to those used in the Foresight Report to deconstruct the numerous variables that emerged in the data (see Figure 6.1). One main difference however, was that I also included an extra layer of meta-groupings for client, practitioner, process and environmental factors (metacodes) to help manage the inherent complexity of the model.

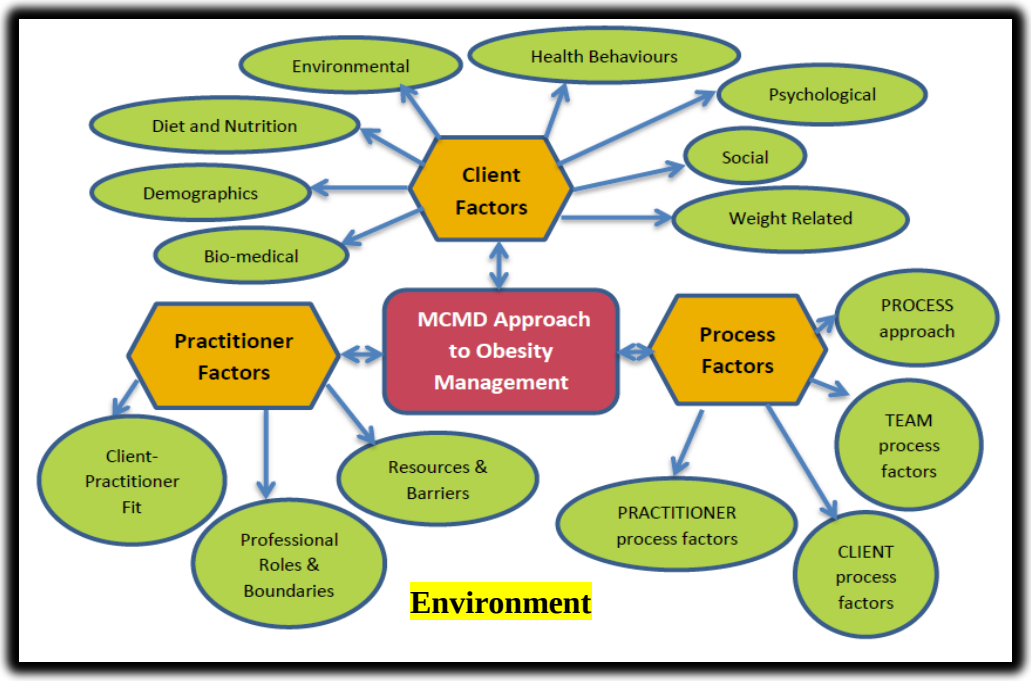

Figure 6.2. Metacodes and parent codes nested in the larger environment.

Figure 6.3 provides a simplified diagram of the metacodes. The centrality of process factors shows how the client, practitioner and environmental factors impact upon one another.

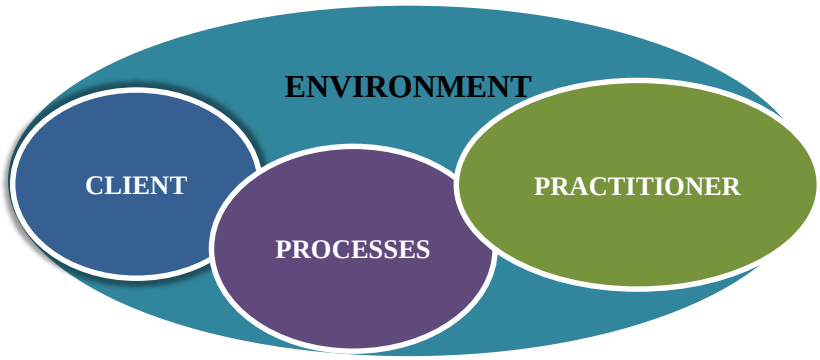

Figure 6.3. Metacodes Relevant to a MCMD model.

To speak metaphorically, I considered the process factors the "oil for the engine." The client was the learner-driver. The practitioner was the trainer in the passenger seat teaching the client how to navigate the different environments. This assumes that the client has driving lessons until he or she learns to navigate the environment on his or her own, using his or her own oil.

The complexity of the current thematic analysis, and models like the Foresight Map, lend support to conclusions drawn by systems thinkers such as Rutter (2011) and Hamid (2009). These authors propose that we are unlikely to find the solution for reversing obesity prevalence in rigorous evidenced-based research that is designed to distinguish whether a particular treatment is more effective than placebo. Rutter (2011) and Hamid (2009) believe that a complex issue like obesity requires consideration of a systems thinking perspective that integrates multiple elements of obesity and can endure uncertainty and unpredictability. Therefore, a goal of this MCMD approach was to explore a move away from reductionist linear models of cause and effect to an engagement with the non-linear complexity of the obesity problem. Systems perspectives will be discussed next.

6.2.2 Conclusion Two: Obesity is a multi-system condition that may therefore best suit a systems approach.

As noted in the previous section, systems thinking and modelling are useful for 'messy' (Finegood et al., 2010) and multisystem conditions (Olshansky et al., 2005; Wagner et al., 2001) like obesity. The results of this research suggest that interventions for weight management could be more effective if they were designed around the social, psychological, biological, economic and environmental issues impacting on individuals presenting for weight treatment. It would be challenging to implement linear models that could cope with this level of complexity.

Using systems thinking, the metacodes that crystallised in the data can be interpreted as components of a complex system. Similarly, the parent nodes, child nodes, grandchild nodes, and so on can be translated into smaller sub-systems. Figure 6.4 provides a schematic representation of the sub-systems of both the client and the practitioner; these are nested in the over-arching system that is referred to as the obesogenic environment. Process factors facilitate interaction among the systems. Hamid (2009) explains that it is the function of interactions between the parts of a system that determines a systems performance. Hamid further explains that dissecting the system into isolated cause and effect components prevents us from understanding the system as a whole. He says it is when a separate component is seen in association with the other parts of the system that it is understood.

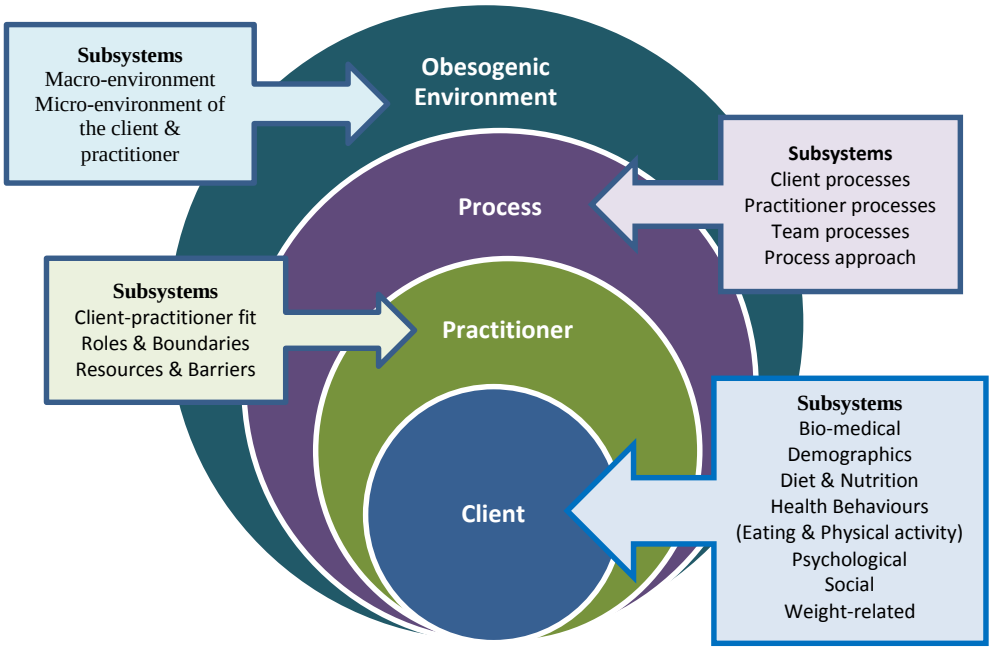

Figure 6.4. Systems interplay for managing obesity.

A systems approach recognises that a number of factors are potentially responsible for most problems (Bar-Yam, 2004). Applying this understanding to obesity, it stands to reason that various components of the system will impact obesity management outcomes. For example, Bar-Yam points out that because individuals may be components of the system, their role in system function must also be considered in order to create successful change. The part of the system that the MCMD approach focuses on is the individual and the individual's micro-environment. Applying the notion that individuals influence the system and therefore impact on obesity outcomes, various sub-systems of the individual may require consideration in

a systems approach to weight management. Examples of individuals relevant to a MCMD approach could be:

- the overweight or obese individual (client);
- the people who influence their food choices (e.g. parents and peers); and,
- practitioners.

The systems approach emphasises the practitioner's task in establishing an environment for the client based on process principles similar to those distributed by the IOM (Institute of Medicine, 2001), and discussed in Section 2.3 above. Concepts such as self-management, self-empowerment, and action learning are consistent with the IOM principles. The client can be taught to respond proactively to the circumstances of the environment using process approaches, with the support of the client-practitioner relationship.

System maps, such as the Foresight Map (Butland et al., 2007) and the preliminary model developed by this research, could hold one distinct advantage over traditional methods. They have the potential to shift attention away from ineffective mono-interventions toward multi-component solutions more appropriate for complex, multi-system problems like obesity. The combination of a systems approach with action research methodologies provides a responsiveness and fluidity that contraindicates the "all or nothing" reactivity that clients revert to when more dichotomous approaches like "eat less, move more" are used. Clients who focus on weight loss only often report feelings of failure when they don't lose an amount of weight commensurate with their perceived effort, or in alignment with their, often unrealistic, goals. This feeling of failure is commonly cited as the reason for relapse (Cooper, Fairburn, & Hawker, 2004). A systems approach has the potential to mitigate this "all or nothing" response, by introducing multiple goals that the client could be working on to achieve change. For example, instead of purely focusing on weight loss the client could be working on fitness, personal development activities or clearing the kitchen of trigger foods.

Despite their potential usefulness, systems perspectives have not been widely adopted in obesity research. The likely reason is that developing multicomponent (MC) assessments that capture adequate systemic information to inform interventions is daunting (Finegood et al., 2010). Adding feedback loops that allow interventions to

adapt responsively to the dynamic and "messy" nature of obesity, across systems, is also challenging. As already noted, information-dense models like the Foresight System Map (Vandenbroeck et al., 2007) are still conceptual. To translate the Foresight Map into a practical application, Finegood et al. suggest viewing the map as a "suite of tools, each with its own particular function" (p. S14). This suggestion could be applied to the MCMD model during the implementation phase.

Another example of a systems approach that faces implementation difficulties is Wagner's Chronic Care Model (CCM) (Wagner et al., 2001). The CCM requires comprehensive system changes. Such changes are not always possible in smaller health practices with limited resources, or in independent practices that have built alliances with other health practices and do not have the inbuilt leadership common to centralised organisations. The advantage of the MCMD approach is that it does not rely on broad-scale systemic changes; the MCMD approach focuses on the micro-environment of the client. Notwithstanding, the MCMD approach has the potential to be used in decentralised private practice settings or in centralised MD teams. Another drawback of the CCM model is that it does not explicate processes for productive practitioner-client interactions. Similarly, the CCM model does not explicate procedures that ensure that teams possess the expertise to provide appropriate clinical and behavioural management. Guidelines have limitations unless they are embedded into practice through education, decision making processes, or quality assurance processes (Woolf, Grol, Hutchinson, Eccles, & Grimshaw, 1999). To address this shortfall in the CCM model, during the implementation phase, the MCMD model will incorporate procedures that ensure practitioners will seek education and training in obesity and teamwork before participating in the MCMD approach. Recommendations for education and training are discussed in Sections 6.3.3 and 6.3.4 below. However, until institutions or associations are able to meet these educational needs, it may be that this MCMD model will benefit from developing or sourcing a curriculum to meet these training needs during the implementation phase.

The advantage of being able to review previous models like the Foresight maps and Wagner et al.'s CCM is identifying potential limitations that can then be addressed in the MCMD model. With these limitations in mind, the first step for the MCMD approach will involve the practitioners addressing their knowledge, skills, abilities, values, and attitudes in relation to working with obesity and/or chronic conditions.

This would require that the practitioners address their own issues in the area (e.g., weight, exercise) and problem solve these issues before working with clients. Step Two would involve the practitioners being able to work with other practitioners in the team. Step Three would involve the practitioner being able to use the model to work with the client as part of a MCMD team. Figure 6.5 shows how complexity increases when one considers the interactions between the MD practitioners within the practitioner system, and between each practitioner/coordinator and client. Further complexity is added when the sub-systems within each metacode system are considered.

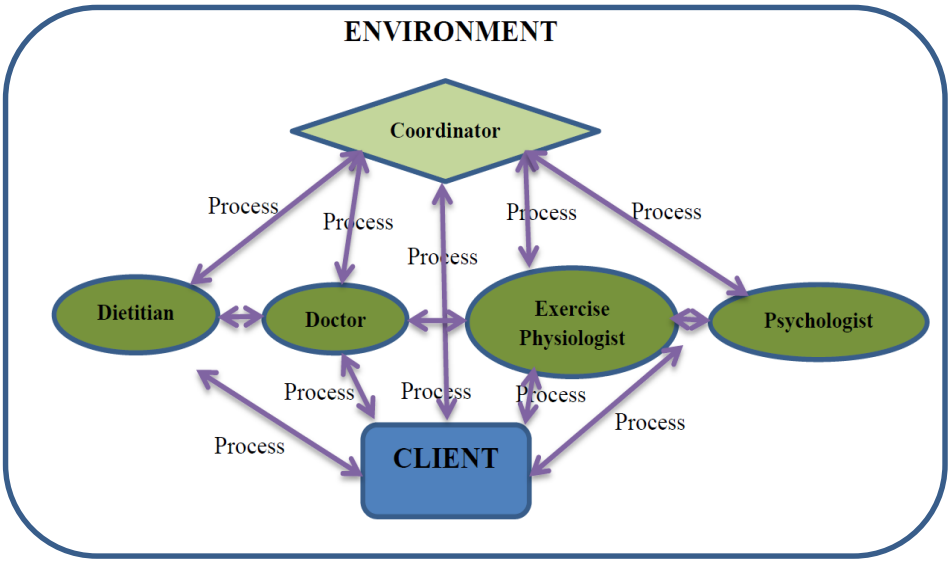

Figure 6.5. Processes between practitioners and the client in an obesogenic environment.

Superimposed on the client and practitioner systems are the systems that make up the environment they nest in. This can include the larger sociocultural, legal, economic, political, and recreational and food production and supply systems, as well as the built environment. The process system links the systems. The process system ("the oil for the engine") includes the methodological processes used by stakeholders to facilitate a MCMD approach to obesity management.

6.2.3 <u>Conclusion Three</u>: Dynamic and responsive methodologies like action research appear to lend themselves to the management of a complex conditions like obesity.

Finegood et al. (2010) believe that one way to deal with complexity is to implement cycles of continuous improvement rather than trying to control for it. Action research methodologies that promote continuous improvement in real life settings will therefore work well for changing multi-system problems like obesity. As

relapsing conditions (Stubbs et al., 2011), overweight and obesity require ongoing monitoring (National Health and Medical Research Council, 2012b).

Green (2006) believes that in order to achieve more evidence-based practice, we in fact would advantage from more practice-based evidence. The feedback that is produced by iterative action research cycles (refer back to Figure 3.2) helps us learn from what we do at different levels of the system (Finegood et al., 2010). This forms a model of practice-based evidence that can then be informed by evidence-based practice.

Dick (2001) developed a change model with inbuilt feedback loops that I adapted for this research. Although it was developed for community change management, as a process model, it can be applied to any change process, including weight loss. Dick's (2001) model has three phases: preplanning, planning, and change.

The model is participative. Preplanning sets the stage for change. Rapport, respect, non-judgement, and other components of relationship building are to be emphasised at this stage. It focuses on collaborative decision-making among clients and practitioners. However, the process is completely client-focused; only changes that the client supports are included. The client is also inoculated against 'life not unfolding according to plan' and is encouraged to use mistakes as staging posts to final success, rather than as excuses for relapse. The intention is that collaborative and realistic pre-planning will build client commitment for the change process.

The following is an explication of how Dick's (2001) change model can be applied to obesity management. Figure 6.6 presents the planning component of the pre-planning → planning → change model presented above. Using this model, the client establishes where he or she wants to go (goal setting) in reference to where he or she is now (situation analysis). The act of identifying the discomfort that individual's experience in their "now" provides fuel for change. Goal setting forms

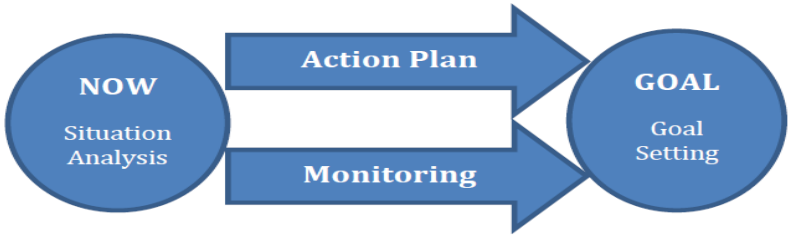

Figure 6.6. The planning component of Dick's (2001) change model.

the motivating vision required for change. Flexibility is built into the planning in a way that mitigates "failure to achieve." Based on the research data and my personal experience in weight management, broadening goals beyond actual weight loss could provide more opportunities for the client to reinforce success (a systems approach works well for this). To help make the goals achievable, one part of the plan (action planning) asks, "How are you going to get there?", and, "Who does what, by when?" This step makes the process seem more achievable. If the change process is directly associated with the person's values, this further galvanises the client's desire for action. The second part checks whether the plan is still appropriate at any point in time (monitoring). It enables potential side effects or barriers to be mitigated. Monitoring ensures the benefits outweigh the costs. Performing action planning and monitoring simultaneously allows the change model to respond dynamically to the prevailing circumstances. Figure 6.7 outlines the cycles of the process and Figure 6.8 details the change process.

Key assumptions of this model are that the practitioner has a high level of communication, counselling, and facilitation skills. This involves active listening and empathy. It also includes the ability to help the client identify issues, the symptoms for those issues, and the interventions to address them. Both C1 and C2 nominated practitioners as having deficits in this area. This model offers processes that would up-skill practitioners. Dick (2001) provides a detailed overview of these processes. These processes include situation analysis, force field analysis, impact analysis, event track and a strategic planning process called the Snyder process.

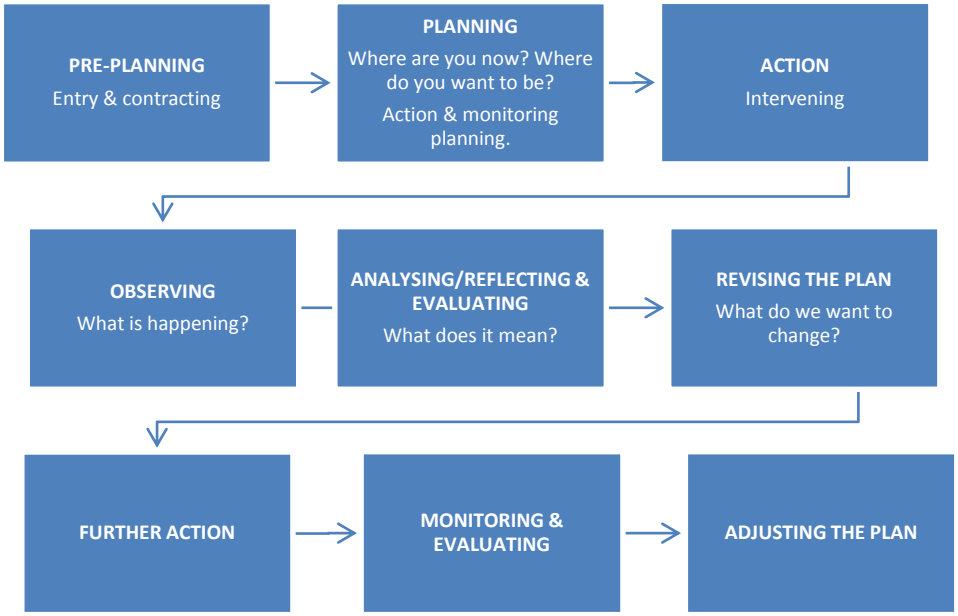

Figure 6.7. Step-by-step action change process (ongoing) – adapted from Dick's (2001) change model.

It was not within the scope of this research to provide an exhaustive overview of the process for improving relevant practitioner skills. However, the work of Scott and Miller (Duncan et al., 2009) merits further exploration to identify ideas suitable for the MCMD model. These authors are proponents of the idea that therapists should become more change-focused in therapy. The stakeholders also put forward a number of ideas that promote a change focus that could be included in the MCMD model. Examples are as follows:

- asking questions about the client's previous experiences of successful change to identify the client's theory of change. This information will guide choice of technique and integration of various therapy models in clinical practice;
- making direct statements that presuppose client involvement in the resulting change;
- exploring the client's role in changes that occur during treatment. When clients assign change to their own efforts they are more likely to sustain the changes; and,
- summarising the changes that occurred during sessions, and inviting clients to review their own role in the change, at the end of the visit.

PRE-PLANNING (contract)	• **preparing & planning for change:** o developing a working alliance – rapport, empathy, commitment o consent & confidentiality o encouraging client engagement & active participation by establishing a framework for self-management, self-empowerment and continuous improvement o building support structures o clarifying roles & responsibility; hopes & expectations o identifying process preferences; o performing value alignment to facilitate value-based actions
↓	
COLLABORATIVE PLANNING (assess & plan change)	• **developing the action plans** o goal setting – where do you want to go? Search. o situation analysis – where are you now? ▪ force field analysis (restraining/driving) ▪ client & practitioner factors including client-practitioner fit o impact analysis – costs and benefits of change o action planning; ▪ how to get where you want to go? ▪ event track; mind mapping; Snyder process ▪ ensuring the client has the resources to commit to the actions ▪ client-intervention fit ▪ value alignment o outcome analysis ▪ developing performance indicators and processes to monitor and respond to change (continuous improvement)
↓	
ACTION (change)	• **Implementation** o action monitoring; adjusting actions & goals to emerging circumstances o monitoring resources required to achieve change o collaborative decision-making & problem-solving barriers to change o open communication & sharing of information
↓	
OBSERVE REFLECT (evaluate)	• **Monitoring & evaluating** o what has worked well & what needs to be modified? o including sessional evaluators (Duncan et al., 2004) o making changes and learning explicit; amplifying this o reviewing performance indicators o identifying factors that will maintain positive changes o reviewing support systems and support needs

Table 6.1

Participative Change Model for Obesity Management (Process Factors). Adapted from "Community & Organisational Change," by B. Dick, 2001, p. 9. Copyright 2001 Interchange.

Scott and Miller also promote the consistent collection of valid and reliable feedback, regarding the client's experience of the process and outcome of treatment (Miller, Duncan, Sorrell, & Brown, 2005). Research conducted by Miller et al. has shown that using these feedback scales can nearly double the effect of treatment, as well as improve client retention and cost-effectiveness. I have reviewed these feedback scales with a view to incorporating them in the MCMD model during implementation. The scales are available from Scott Miller's (www.scottmiller.com) or Barry Duncan's (www.heartandsouldofchange.com) websites.

6.2.4 Conclusion Four: Environmental drivers appeared to be the least acknowledged component of a MCMD approach.

Despite the fact that a number of researchers attribute the obesity epidemic to individuals' maladaptation to an "obesogenic" environment (e.g., Stanton, 2006; Swinburn et al., 2011), environmental factors were not given significant attention by any one stakeholder, other than the health epidemiologist (HEp), in this research. Client, practitioner, and process factors crystallised more strongly in the interview and observational data. This was a major point of difference between the current research and the Foresight Map. The Foresight Map included primary clusters related to the environment, including: *food production, food consumption,* and the *physical activity environment*. Only one stakeholder, DN, briefly referred to the built environment and physical safety issues that preclude physical activity.

Although stakeholders (except HEp, and to a lesser extent DN) did not emphasise the relevance of environmental factors in managing obesity, the literature did (Johnson et al., 2012; Papas et al., 2007; Popkin, Duffey, & Gordon-Larsen, 2005; Spence et al., 2009; Swinburn et al., 2011). In combining data from the literature, interview, and observational data, it became clear that client, practitioner, process, and environmental factors needed to be addressed in developing a MCMD approach. HEp provided the following statement in support of an environmental approach.

- "Obesity is a sign that something is going wrong in the whole environment. There are two levels of obesity – individual and environmental. Unless you deal with the environment you are not dealing with population obesity. But, you can deal with individual obesity and not the macro environment. You can just deal with the micro environment in their home. I think that's a good patch?"

Figure 6.9 depicts my conceptualisation of the environment based on HEp's comments and the literature cited above. Given the constraints of thesis research, my environmental focus was consistent with HEp's suggestion of focusing on the individual and their micro-environment.

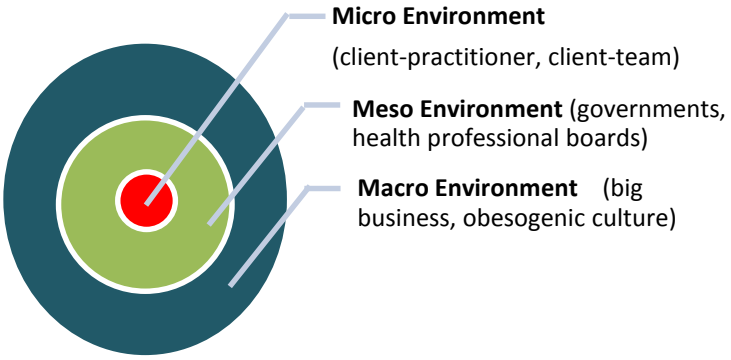

Figure 6.8. Environmental levels of intervention.

I was unable to identify any comprehensive assessments that incorporate environmental considerations, at either a micro or macro level, to help inform or tailor interventions. Given the environment's role in the causation and perpetuation of the obesity epidemic, environmental factors will ultimately need to be considered in a MCMD approach. In fact, at the present time, if governments could be engaged, a combination of environmental and individual interventions would likely offer the most comprehensive approach. However, as already noted, addressing broader environmental factors (outside the client's micro-environment) was not feasible as a focus for this thesis research.

6.2.5 Conclusion Five: Individual approaches currently have the potential to influence the micro-environment of the client.

Kumanyika et al. (2002) propose that there has been no time for evolutionary genetic changes to occur in response to the dietary changes brought about by the introduction of agriculture and animal husbandry 10,000 years ago. Furthermore, they claim that there has been even less time for humans to adapt to the significant changes to the food supply over the last 40 years (Power, 2012). Subsequently, the liability of having a physiology designed to store fat for times of shortage, in a society now termed obesogenic, suggests that a potential approach to weight management is to assist overweight and obese individuals to learn how to adapt to the obesogenic environment to prevent excess weight gain. Why? Public health campaigns have not curbed obesity (Walls et al., 2011). Governments have been unsuccessful in their attempts to influence

the food and beverage industry to make changes that would reduce obesity and comorbid chronic disease rates (Brownell et al., 2010; James & Rigby, 2010). Strong opposition by the food and beverage industries in relation to initiatives such as WHO's Global Strategy on Diet, Physical Activity and Health (World Health Organisation, 2004), and the implementation of an EU-wide traffic light system for labelling (EurActiv.com, 2010) exemplify the resistance governments have encountered in attempting to mitigate current obesity trends at a population level. Stakeholders (e.g., DN, DR2, ES, and HEp) echoed what appears to be government ineffectiveness in influencing the food and beverage industry. These stakeholders expressed scepticism in relation to the likelihood that the Australian Government would further intervene by invoking legislative processes that would reverse obesity trends, in the near future. Given this situation and the fact that it was not in my sphere of influence to leverage the wider political or economic environment, an individual approach was considered to be a much more feasible arena for this research. Figure 6.10 shows how an individually focused MCMD approach to weight management can influence environmental factors. Firstly, it can directly influence the client's micro-environment. Examples would include avoiding commercial television to circumvent being exposed to food advertisements. Secondly, a MCMD approach can incorporate strategies to help modify their environment or modify their response to their environment. Examples may include teaching client's how to respond to people who pressure them to eat energy dense foods at celebrations (e.g., birthday cake), or even how to manage their response to food-related television advertisements.

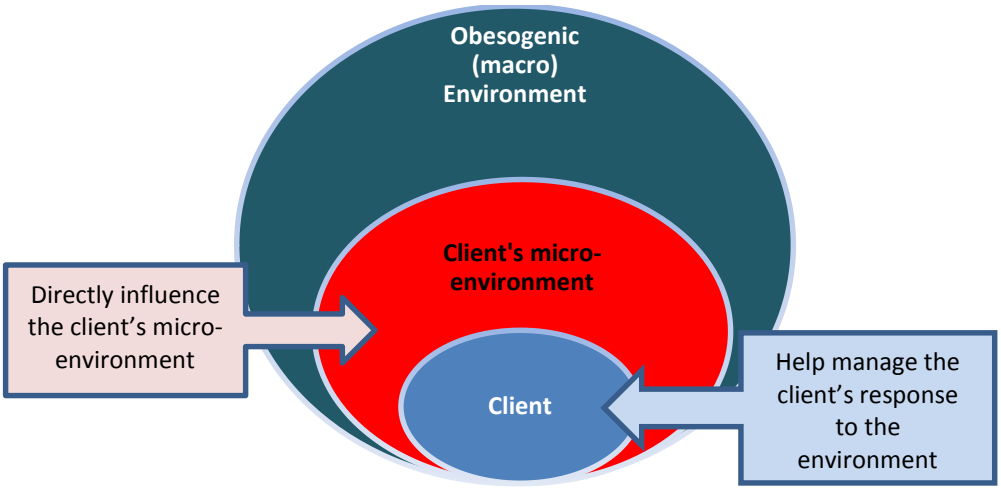

Figure 6.9. Points of influence in a MCMD approach.

Action research methodologies lend themselves to the management of the interaction between the client and the micro-environment because the practitioner or the client will not know how to intervene until they experience or encounter the situation.

6.2.6 Conclusion Six: Emphasising the role of the practitioner, as well as the client, may optimise obesity outcomes.

The collective data emphasised that increased practitioner accountability in weight loss initiatives would likely benefit weight management outcomes. Both C1 and C2 described how the interaction (Figure 6.5) between the client and practitioner influenced their decisions to either continue or discontinue weight management initiatives. This interaction between the client and practitioner is referred to as the working or therapeutic alliance (Taber et al., 2011).

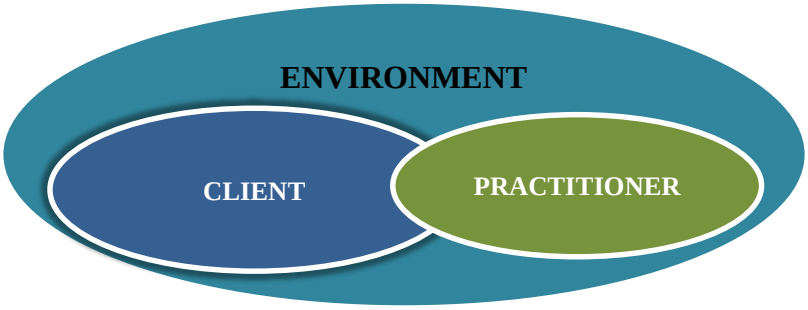

Figure 6.10. Interaction between client and practitioner.

Practitioner considerations have been a relatively unexplored conduit for addressing obesity. "Blaming the client" has already been established as a stance taken by governments (refer to Section 2.3.2). However, there is scant reference to the notion of "blaming the practitioner." During this research, comments were frequently made in relation to practitioner limitations, both by clients and practitioners during data collection. These limitations are presented as recommendations in the next section.

6.3 IMPLICATIONS AND RECOMMENDATIONS:

A number of implications and recommendations (refer to the box below) that may help manage obesity, using a MCMD approach, emerged from the totality of the current research. Consistent with an action research approach these recommendations are tentative and will be tested when the MCMD approach is implemented.

Implications and Recommendations

6.3.1: A MCMD approach that incorporates systems thinking and action research methodologies may be of benefit in treating the complex condition of obesity.

6.3.2: Models of collaboration that define roles and role boundaries may benefit a MCMD approach to obesity management.

6.3.3.: Practitioners who wish to use a MCMD approach may benefit from education and training in how to work in MD teams.

6.3.4: Practitioners who wish to use a MCMD approach may also benefit from being offered education and training in obesity.

6.3.5: Practitioners using a MCMD approach may benefit from accessing more knowledge and experiential practice in process skills to optimise weight management**.**

6.3.1 A MCMD approach that incorporates systems thinking and action research methodologies may be of benefit in treating the complex condition of obesity.

This research arose from a thematic concern regarding the general ineffectiveness of current (individually focused and non-surgical) weight loss strategies and the fact that recommendations for MC or MD approaches to obesity management were not being translated into practice. In addressing this thematic concern, this study commenced the development of a MCMD approach to obesity management that could be applied in practice. Following is a summary of the MCMD approach developed within the current research timeframe:

Components

nVivo analysis crystallised client, practitioner, and process factors as core or primary components of a MCMD approach. Environmental factors were added as a fourth primary component after the data was triangulated with the literature (Johnson et al., 2012; Papas et al., 2007; Power, 2012; Swinburn et al., 2011). Refer to Section 4.2.2 for a summary of the secondary (e.g. medicine, psychology, nutrition and exercise) components of the MCMD model.

Disciplines

Disciplines identified for the MCMD model ranged from, but were not limited to, doctors, psychologists, dietitians, nurses, exercise physiologists, social workers, physiotherapists, podiatrists, occupational therapists, and dentists (refer to Section 4.2.3, Section 5.4.1 and Appendix L for a summary).

Roles

There was no consensus on who should conduct triage, pre-screening, or coordination roles for a MCMD approach (refer to Section 5.4.2). Medical stakeholders believed that it should be the GP; other stakeholders thought that it should be the first person with whom the client consults. Other stakeholders believed that the client should choose the practitioner who they are either most connected with, or with whom they would be consulting most regularly. Still others recommended re-engineering the workforce so that a less expensive professional could provide the coordination and obesity management services. If none of these options were feasible, a final suggestion was for the client to be trained to be his or her own coordinator.

Interdisciplinary roles and boundaries or a true systems approach?

It is assumed that the professionals working as members of a MCMD approach would be trained in obesity management and be fully aware of roles and boundaries when working systemically. However, as pointed out by Rutter (2012), an interdisciplinary approach "may just be the last gasp of an old paradigm, before the disciplinary boundaries are properly dissolved and a true systems approach prevails" (p. 658).

Process model

A change management model, based on action research principles, was put forward as the suggested process to deliver the MCMD approach (see Figure 6.6, 6.7, 6.8). In relation to the implementation process for a MCMD approach, stakeholders recommended the following:

- commencing client self-selection for weight management intervention through the use of wall posters or pamphlets in health care waiting rooms;
- an alternative starting point could be the practitioner and client collaboratively agreeing on a MCMD approach to obesity management; and
- two processes could then be conducted. The first could be a pre-screening of secondary components including food and nutrition, physical activity and fitness, psychological status, and medical status. This step would inform referral priorities to other professionals and also help to determine who would take on the role of coordinator. The second process could be implementation of the change management process (action research

methodology) underpinning the MCMD approach. The assumption is that the practitioner introducing the change management process for weight loss would be trained in the approach.

- *Preplanning or Contracting.* As part of the "preplanning" step, the components of client, practitioner, process, and environment, and a systems approach, could be explicated. This preplanning step could also involve clarifying roles and responsibilities, hopes and expectations, and developing a working alliance. A client-focused, self-management, action learning approach (based on the change management model elaborated above) could be clarified and agreed upon.
- *Collaborative planning (assessing and planning change).* Collaborative planning could commence with a situation analysis, followed by goal setting, followed by action and monitor planning.
- *Action or Implementation.* This phase could involve the implementation and monitoring phase of the weight management program. During this stage, barriers to successful change could be problem solved in response to prevailing issues and circumstances. Positive changes could be reinforced. Open communication, shared information, shared language, and shared records may be integral components of this phase.
- *Observe-reflect (evaluation).* Ongoing monitoring and evaluation would allow a complex, multi-system condition like obesity to be managed proactively and dynamically in real time. Figure 6.8 details potential tasks for this phase.

6.3.2 Models of collaboration that define roles and role boundaries may benefit a MCMD approach to obesity management.

Considering pervasive recommendations across the disciplines for MC and/or MD approaches, the scarcity of models of collaboration is noteworthy. Based on this research, lack of role clarity could have the potential to contribute to poor outcomes for MD approaches to weight management. Addressing roles and boundaries may therefore be an important step in optimising the effectiveness of a MCMD approach. Solutions that could address the role barriers elaborated in Section 5.4 include:

a) detailing the position statements of the disciplines to be involved;

b) providing models of collaboration that delineate the boundaries of each discipline (refer to an example in Appendix L);

c) addressing shared functions among the disciplines; and

d) considering more innovative workforce solutions such as re-engineering the workforce (DN's idea) and training auxiliary health professionals (Derbas et al., 2009) to manage overweight and obesity. This solution could help address the magnitude of overweight and obesity prevalence and the subsequent cost of treating the condition.

The solutions listed here will be considered during the implementation phase.

6.3.3 Practitioners who wish to use a MCMD approach may benefit from education and training in how to work in MD teams.

The data indicated that practitioners report a lack of knowledge and process skills for working in MCMD teams. Along with poor role and responsibility clarity, this could be another factor contributing to poor weight management outcomes for MCMD teams.

The data indicated that most Australian psychologists, dietitians, exercise scientists, and medical doctors do not always receive specific training in how to work in MD teams. By way of example, training in MD teams is not offered at the university where this research was conducted, either at the undergraduate or postgraduate level, in any area of psychology, exercise science or nutrition and dietetics. A number of training placements are offered in hospital-based MD teams for a small group of psychologists and dietitians, but this option is not offered to all healthcare graduates (observational data). A doctor providing observational data also indicated that doctors were not trained in how to work in MD teams. However, TL, the allied health leader who provided observational data believed that speech, occupational, and physiotherapy disciplines do undergo some training in how to work in MD teams during their tertiary training.

Given that MD approaches are the current recommendation for obesity management (National Health and Medical Research Council, 2013), training obesity management practitioners in how to work effectively as a member of a MD team could be of benefit. Research has found improvements in collaboration and communication

among interdisciplinary health professionals where training in how to work in MD teams was provided (Chan et al., 2010). MD training could be provided at either an undergraduate or postgraduate level in tertiary settings. It could also be provided as a credentialing process delivered by individual disciplinary associations such as the DAA, ESSA, the Australian Psychological Society (APS), or the Australian Medical Association (AMA). The APS has recently commenced a postgraduate credentialing process. In June 2013, the APS informed members it would be "providing formal post-qualification learning opportunities for psychologists to facilitate the skill development of the psychology workforce through an organised structure such as an academy or training institute" (Littlefield, 2013, p. 6). The APS intends to provide training options that fall between the formal accredited training courses offered at tertiary institutions and standard continuing professional development (CPD). The APS will provide "practice certificates" for advanced training and refresher courses with clear curricula. Using a certification process ensures that the participant is able to translate the knowledge into practice, and become skilled in any new areas they wish to practice. This move by the APS recognises that training cannot stop once the professional has been awarded their degree. New evidence is being regularly discovered, and providing ongoing education and training could help to ensure that professionals translate evidence into practice. The APS reported that they will focus on online platforms to deliver this education. The APS's model could be an interdisciplinary option that is used to train professionals in how to work in MD teams and how to work with obesity.

Training practitioners in how to work in MD teams could help address the "silo mentality" identified as a barrier to a MCMD approach in Section 5.4.5 above. Ham et al. (2012) believe this "silo mentality" has been fed, in part, by current healthcare models that rely on practitioners working in silos. A number of stakeholders posited that educational institutions have essentially developed their training to meet the requirements of current healthcare paradigms and that this has subsequently perpetuated "silo training" and a "silo mentality. Innovators in obesity management (e.g., Alvaro et al., 2011) are urging practitioners to get out of their silos and become unified "activists for change".

6.3.4 Practitioners who wish to use a MCMD approach may also benefit from being offered education and training in obesity.

All sources of data indicated that practitioners across the disciplines believe inadequate training in obesity is a barrier to being able to effectively manage the condition of obesity (refer to Section 4.2.3, 5.4.1, and Appendix L). According to a number of stakeholders, the reported training inadequacies (Forman-Hoffman et al., 2006), and therefore the number of professionals trained to treat obesity, are not commensurate with the prevalence of overweight and obesity nor the financial burden that obesity-related health conditions place on personal and government budgets. Data outlined in Section 5.4.1 indicated that Australian dietitians receive less than two weeks of dedicated education in obesity during their training. Psychologists, doctors, exercise scientists, and the other health disciplines referred to above, were reported as receiving even less training in the area of obesity.

As indicated by the data, components of obesity incorporate psychological, social, behavioural, nutritional, medical, pharmacological, physiological, and exercise-related areas. Appendix S provides a brief synopsis of potential training needs in these areas.

Undergraduate training and CPD. An undergraduate training course and/or ongoing CPD training for health professionals in the area of overweight and obesity could offer a solution to the reported lack of knowledge in the area. I also offer this suggestion on the basis of: the recommendations above; the high prevalence and chronicity of obesity; the complex and multi-systemic nature of obesity; the fact that the American Medical Association has assigned obesity the status of a disease; and the high comorbidity of obesity with other diseases and the economic burden ensuing from obesity-related comorbidities. Most health professions will confront obesity in some capacity. The creation of undergraduate training (TAFE or university) for health professionals in obesity could help address current barriers and also provide training in MCMD approaches and other chronic lifestyle diseases.

Inter-professional education. A specific undergraduate tertiary course for healthcare practitioners providing inter-professional education is already offered in the UK (McNair, 2005) and is also being trialled in a university in central Queensland, Australia. Orchard et al. (2005) believe the provision of inter-professional education promotes more effective teamwork and encourages collaboration with the client.

Workforce re-engineering. One stakeholder's idea (DN) was to develop lower-cost specialists in obesity which could refer to more specialised health professionals when necessary. If a certificate, diploma, university major, or a degree in obesity and interdisciplinary healthcare was offered, this could potentially become a platform for re-engineering the workforce. Individuals graduating from such a program, if created, could become "obesity assistants," "obesity coordinators," or "assistants" for any of the health professions. Alternatively, they could choose to go on and specialise in a preferred discipline. This suggestion could be integrated with a move towards inter-professional education.

6.3.5 Practitioners using a MCMD approach may benefit from accessing more knowledge and experiential practice in process skills to optimise weight management.

Training practitioners in the process skills required to engage and maintain clients in weight management interventions could help optimise weight loss outcomes. Areas of training identified during this research are outlined below.

Training on how to apply evidence-based practice, in practice

Tertiary trained healthcare professionals are required by both their professional associations and the government and corporate bodies to whom they provide services, to use evidence-based treatments for clients. However, both researchers (Fairburn & Cooper, 2011; Flodgren et al., 2010) and practitioners (observational and interview data) report a gap between evidence-based recommendations and what is implemented in clinical practice. Professor Chris Fairburn, a psychiatric specialist in CBT and eating issues, stated during a workshop he ran in Melbourne in mid-2011 that there are no evidence-based training programs to train practitioners in the delivery of evidence-based treatment modalities. He said his research team were working on the development of more effective methods for ensuring that practitioners access and utilise evidence-based guidelines correctly (Fairburn & Cooper, 2011).

Training in how to apply practice-based evidence

The benefits of practitioners using practice-based evidence to inform practice are discussed in Sections 3.1.2 and 6.2.3. Considering evidence-based guidelines are not necessarily complied with, and given the complexity of obesity, I believe it could be prudent to train practitioners in the use of practice-based evidence. The action research methodology proposed for the current MCMD approach to obesity

management offers a responsive and dynamic practice-based approach for generating practice-based evidence to inform obesity management. Performing practice-based evidence may encourage practitioners to review the evidence-based practice.

Regular reviews of training needs

As pointed out by DN, a limitation of undergraduate dietetic training programs is that the students do not always value what they are learning because they are not aware of what will be relevant in the workplace. To address this, it could benefit universities to survey professionals after graduation to gauge the appropriateness of the training they received in preparing them for their job roles. This feedback could be used to improve the training programs, and in particular to demonstrate to students what are important knowledge, skills, and abilities to focus on during training.

Training in self-management philosophies for healthcare

When a GP describes the patient as "the most under-utilised resource in healthcare" (refer to Section 4.2.1.4), it is obvious that self-management philosophies are not being consistently practiced. Only DN, MEd, and N1 actually mentioned the term, "self-management." The Australian clinical practice guidelines for managing overweight and obesity recommend a self-management approach for long term weight management (National Health and Medical Research Council, 2013). Self-management involves the practitioner partnering with their client and assisting the client to take the central role in managing their own health (Department of Health, 2007). The partnership between client and practitioner helps the client prioritise and set realistic goals, and make informed decisions about treatment and management options. The idea is for the client to work with a supportive healthcare team to attain desired health outcomes. By teaching the client self-management principles, the client learns to self-regulate their own weight with minimal professional contact. Such an approach attempts to address the lack of funding opportunities for accessing professionals. The philosophy of self-management is consistent with the MCMD approach developed during the course of this research. There are numerous guidelines available that provide frameworks for implementing self-management that could be accessed during the implementation phase of the MCMD approach (Department of Health, 2007, 2011).

Self-empowerment

Duncan et al. (2004) claim that client factors (a non-therapeutic factor) contribute more to therapeutic outcomes than alliance, allegiance, or the model used (therapeutic factors). Accordingly, a client empowerment-based approach could be considered more appropriate for a self-managed condition like obesity than a compliance/adherence approach. However, the only stakeholders to mention the importance of empowering the client in maximising outcomes were DN, SW, N1, N2, and ME. This finding could underscore the importance of training practitioners in skills to self-empower clients as a pathway to self-management.

Anderson and Funnell (2010) define empowerment as "a process designed to facilitate self-directed behaviour change" and describe it as "the antithesis of compliance" (p. 277). They refer to empowerment as both a process and an outcome. As a process, empowerment-based interventions help individuals to learn to think critically and make informed decisions. Empowerment becomes an outcome when an enhanced sense of self-efficacy occurs as a result of the process.

McGowan (2012) determine that individual and group interventions that focus on client empowerment and building self-management skills are effective in managing chronic conditions. Examples include, diabetes (Norris, Engelgau, & Narayan, 2001) and obesity (Lee, Lee, Jeon, Hong, & Park, 2011). However, a reported barrier to implementing collaborative and empowerment based approaches for self-management is that practitioners do not possess adequate training in the principles of self-management (Higgins, Murphy, Worcester, & Daffey, 2012). As discussed above, this component could be included more explicitly in training initiatives.

Self-control

A lack of personal self-control has been the most consistent reason for relapse clients have given me during the course of my career in weight management. The reward of being able to eat what they wanted, when they wanted, over-powered their desire to be slimmer. During this inquiry, the concept of self-control was not accentuated by stakeholders who were practitioners, but it was voiced by the clients. As C2 said, "If you do the right things you lose weight, but I just give up. And, until I'm ready to do something with it, it's useless. It has to be me. No one else can stop me eating." C1 endorsed this view. She described relapse as, "It's a giving up. Is it really worthwhile? I'm going to get fat and so there."

Bulik (2013) confirms that the obesogenic environment makes over-eating easy. We can eat at any time and at any place. We have lost our concept of normal eating. However, this issue of self-control, while recognised, is not often directly addressed in weight management strategies. Given the role of self-control in food choice and eating behaviour, further research appears to be warranted in identifying ways to optimise self-control.

Working alliance

Duncan et al. (2004) report that the working alliance is one of the strongest (therapeutic factor) predictors of therapeutic outcomes (note: as detailed above the strongest contributor to outcomes is a non-therapeutic factor, referred to as client factors). Client data emphasised how important the working alliance was in preventing treatment dropout. However, the only practitioners to refer to the working alliance were PP and SW, both mental health professionals. As noted in Section 4.2.1.5 above, failure to acknowledge the importance of the working alliance may be a contributing factor to poor weight loss outcomes. As also elaborated in Chapter 4, the relationship between the working alliance and weight management outcomes appears to be an under-researched area.

6.4 LIMITATIONS OF THE STUDY

As this was research for a PhD thesis, I was ethically bound to conduct the analysis of data myself. This introduced an inherent subjective bias. However, I endeavoured to address this bias with a clear willingness to seek out disconfirmation using triangulation strategies, particularly against the literature. The advantage of using participative forms of action research was that they are likely to be seen as trustworthy and credible by participants, simply because they have had a hand in their results.

Action research works well for open-ended "messy" systems such as obesity management because the assumption is that the action research cycles need never end. Given the general nature of the topic, the literature that I could have accessed is enormous and impossible to source in its entirety. Combining these two factors, this research depicts a snapshot in time of a body of research that is limited by my own subjectivity, the subjectivity of the stakeholders, the data I chose to present, the literature I accessed and by the time available to complete a PhD. The research is

ongoing and incomplete. In this rapidly changing world, just like the computer someone bought yesterday, it is already out-dated.

Interventions required to reverse "globesity" may need to be applied at several levels. I have focused on individual behaviour change. Even if this individual MCMD approach becomes incredibly effective, it will not be sufficient to reverse globesity (Gortmaker et al., 2011). It will be but one part of an overall strategy. Further points of entry for obesity management include government policy and legislation; agriculture and food production; transport and the built environment; schools, homes, and workplaces; food services and food supplies (e.g. supermarkets, fast food outlets); education and training; and marketing and advertising (Aylott et al., 2008). The government was successful at curbing smoking, but obesity is a far more complex challenge to confront (Gortmaker et al., 2011). My research is the preliminary development of a MCMD model; ongoing work is required.

6.5 FUTURE DIRECTIONS

I have accumulated enough relevant local knowledge to support the next action research phase, namely the implementation of a MCMD model. Using an action research methodology will allow the model to evolve responsively to the client and to prevailing conditions. I also regard the "implications and recommendations" outlined above as a form of "future direction," and will thus not elaborate further on this topic.

6.6 CONTRIBUTION TO KNOWLEDGE

The thesis has contributed to knowledge and understanding in a variety of conceptual and methodological areas.

6.6.1 Conceptual Contributions

The efficacy of a MCMD approach for obesity management – a local contribution to knowledge, and a methodological contribution.

Various position papers on obesity, obesity reviews, and obesity guidelines (Kirk et al., 2012; National Health and Medical Research Council, 2013; National Institute for Health and Clinical Excellence, 2006) have recommended MC and/or MD approaches to obesity management. The stakeholder pool used to provide data for this research also endorsed the efficacy of a MCMD approach for obesity management. This outcome provides a local contribution to this knowledge base.

A further contribution to knowledge was also made because the efficacy of using a MCMD approach for obesity management was generated by a different methodology, namely, action research. The earlier recommendations for a MCMD approach, referenced above, were based on quantitative methodologies.

Overall, this local contribution to knowledge and confirmation of the MCMD recommendation using a different methodology could be said to strengthen the recommendation for MCMD approaches in obesity management.

Applying systems thinking to a MCMD approach for obesity management

An EBSCO search revealed a slowly emerging reference to system-based approaches to weight loss (see Table 6.2). The search identified an initial reference in 1991. A marked increase in references to systems thinking in weight management did not then take place until 2011. As outlined below, the majority of the systems approaches were developed for the prevention or treatment of childhood obesity. The remaining references were general conceptualisations of a systems approach and were predominantly population-based.

The cursory EBSCO review of systems thinking in relation to obesity management, presented in Table 6.2, confirmed that the concept is not new. However, the reviewed articles also highlighted a point of difference between the current research and previous research that could justify the current research as more than a local contribution to knowledge. Firstly, the focus of the current research was to develop a working model of a MCMD approach to obesity management that could be used as a framework and process for individual (both child and adult) weight loss interventions in generic clinical settings. As noted, the studies in Table 6.2 appeared to be predominantly focused on childhood obesity and systems frameworks for populations. None of the studies appeared to focus on adult interventions in clinical settings, nor did they attempt to explicate the totality of individual systems impacting on the individual. Secondly, the MCMD model in development was predicated on primary data drawn from stakeholders associated with obesity management ranging from researchers, practitioners, and clients. These primary data were triangulated with secondary data – observation and the literature – to develop the most applicable working model. This approach was not taken in the studies listed in Table 6.2. Thirdly, a clear contribution to knowledge was the application of a "systems thinking" framework to a MCMD approach for obesity management using a different

Table 6.2

A Sample of Literature on Systems Thinking as Applied to Weight Management From 1991 to Date.

Date	Title and Author	Focus	Comment
1991	Adolescent obesity: Rethinking traditional approaches (Morrill, Leach, Radebaugh, & Shreeve, 1991)	Child School System✓	Proposed systems-based approach to working with obese students. Non-consultative development.
1999	Systems approach to childhood and adolescent obesity prevention and treatment in a managed care organization (Pronk & Boucher, 1999)	Child Close loop	A systems approach to childhood and adolescent obesity prevention and treatment in a managed care organisation. Non-consultative development.
1999	Dissecting obesogenic environments: The development and application of a framework for identifying and prioritizing environmental interventions for obesity (Swinburn et al., 1999)	Population	A conceptual model to clarify the obesogenic environment and to help prioritise environmental research and interventions. No consultation.
2007	Seeing obesity as a systems problem (Newell, Proust, Dyball, & McManus, 2007)		Proposal for a systems approach to obesity. No consultation.
2007	Tackling obesities: Future choices - Foresight project report (Butland et al., 2007)	Population	Qualitative modelling of the evidence base to develop a systems map for obesity. Non-consultative.
2008	Seven models of population obesity	Population	Reviews seven models of obesity.
2010	The integration of a family systems approach for understanding youth obesity, physical activity, and dietary programs (Kitzman-Ulrich et al., 2010)	Adolescent Family system	A literature review and recommendations for a social (family and peer) systems in the prevention and treatment of adolescent obesity
2010	Psychosocial factors and perspectives on weight gain and barriers to weight loss among adolescents enrolled in obesity treatment (J. Porter, M. Bean, C. Gerke, & M. Stern, 2010)	Social & family system	Recommendations for a systems approach for adolescent weight management based on a quantitative and qualitative research study.
2011	Thinking in circles about obesity (Hamid, 2009)		Applies systems thinking to weight management. Non-consultative. Theoretical.
2011	Measuring the 'system' in whole of system approaches to obesity prevention (Allender et al., 2011)	Population	Preliminary development of a systems approach to obesity prevention. Consultative.
2011	The global obesity pandemic: shaped by global drivers and local environments (Swinburn et al., 2011)	Population	Development of a framework to categorise obesity determinants and solutions. Non-consultative.
2011	A systems-based typological framework for understanding the sustainability, scalability, and reach of childhood obesity interventions (Huang et al., 2011)	Child & population	A treatise on "top-down" (government or industry) and "bottom-up" (organisations, academia, and individuals) systems approaches to childhood obesity interventions. Non-consultative & conceptual.

Date	Title and Author	Focus	Comment
2011	The treatment of paediatric obesity: Bringing contexts and systems into focus (Steele & Van Allen, 2011)	Child Population	Proposes a broader systems view (environmental and contextual) for treating childhood obesity. Non-consultative.
2012	Current trends in childhood obesity research (Frerichs, Perin, & Huang, 2012)	Child Population & individual	Recommendation for a systems approach for managing child obesity. Literature review. Non-consultative.
2012	Next steps in obesity prevention: Altering early life systems to support healthy parents, infants, and toddlers (Nader et al., 2012)	Child Population	Recommendation for a systems approach for managing child obesity based on literature review. Non-consultative
2012	The obesity pandemic: Implementing the evidence for children in Scottish families (Millard, 2012)	Child Population	A model developed from a review of the literature to address the public health problem of child obesity. Non-consultative.
2012	Obesity and human biology: Toward a global perspective (Brewis, 2012)	Population	A treatise on the applicability of systems thinking to "wicked problems" like obesity. Non-consultative.
2012	Sustainable prevention of obesity through integrated strategies: The SPOTLIGHT project. (Lakerveld et al., 2012)	Population	A proposal for a method to develop an integrated strategy to manage obesity. Non-consultative.
2013	Next steps in obesity prevention: Applying the systems approach (Huang, Brownson, Esposito, Green, & Homer, 2013)	Child	Insights from experts on how to move forward with a systems agenda for childhood obesity prevention.
2013	Childhood obesity: Effects on children's participation, mental health, and psychosocial development (Pizzi & Vroman, 2013)	Child Population & individual	A conceptual framework to support a multifaceted approach for child obesity. Non-consultative
2013	San Diego healthy weight collaborative: A systems approach to address childhood obesity (Serpas et al., 2013)	Child Population	An applied systems approach working with parents and children for obesity prevention at a community level.
2013	Family-based models for childhood-obesity intervention: A systematic review of randomized controlled trials (Sung-Chan et al., 2013)	Child Family System	An examination of the methodological rigour and treatment effectiveness of family-based interventions, predicated on family systems theory, for childhood obesity
2013	'Whole of system' intervention points for obesity prevention: A case study from a long day care setting (Marks, Barnett, Foulkes, & Allender, 2013)	Child Population & individual	Case studies exploring system influences on children's dietary and activity behaviours
2013	A complex systems approach to perceptions of obesity in service users, health care practitioners and policy makers (Frood et al., 2013)		A qualitative (consultative) study exploring the personal, social, institutional and political perceptions of obesity using a complex systems framework. Purpose was prevention.
2013	A dynamic systems approach to weight related health problems (Mehrjerdi, 2013)		Proposal for a system dynamic model for studying the connections between weight and health issues

methodology (action research) to the studies listed in Table 6.2. The methodological contribution is elaborated in the next section.

Overall, this local contribution to knowledge and confirmation of the efficacy of using a "systems thinking" approach to obesity management could be said to strengthen a number of the conclusions of the current research. Firstly, the complexity of the systems relevant to obesity management and the components within each system, combined with the interrelationships between these systems, create a strong case for the futility of isolated interventions (this supports a similar conclusion by Butland et al. (2007). Secondly, considerable levels of intervention across systems are required to optimise obesity management outcomes. Thirdly, the potential advantage of a systems approach is that it recognises that many factors are responsible for obesity, not just the individual. A systems approach is more likely to integrate the many factors that impact obesity. As previously noted, this shifts attention away from ineffective mono-interventions, toward multi-component solutions more appropriate for complex, multi-system problems like obesity.

6.6.2 Methodological and Process Contributions

There was a clear methodological contribution to knowledge in the use of action research processes to develop the MCMD model for obesity management.

Convergent interviewing and a stakeholder analysis as strategies for the collection of data to inform a weight management model

Based on an EBSCO review and a personal communication with the developer of convergent interviewing (B. Dick, personal communication, July 18, 2013), this current inquiry appears to be the first to use convergent interviewing as a qualitative research methodology to gather data from stakeholders in relation to weight management. However, the sample was unusually diverse. This suggested that in such a circumstance, convergent interviewing would benefit from being supplemented with other data sources. Accordingly, observational data were used as a secondary data source to confirm or challenge findings from interviews. To further enhance rigour, I also triangulated my interpretations against the literature. This solution provides an example of how rigour can be optimised when convergent interviewing is applied to diverse samples.

This current inquiry also appears to be the first occasion that a stakeholder analysis process (Dick, 1990) has been conducted to identify a representative sample of stakeholders from whom data could be collected to inform a weight management model.

Action research as a methodology for MCMD approaches

A significant contribution of this research to the knowledge base of obesity management has been the application of action research methodologies to a MCMD model for obesity management. The flexibility of action research facilitates its application to a systems approach as well as the MCMD approach. The literature review of systems thinking approaches to weight management (see Table 6.1) did not identify the use of action research as a methodology in systems thinking approaches to weight management.

The "systems thinking," MCMD model using an action research methodology, developed during this research, has the potential to be applied to other conditions or circumstances, as well as to multiple and different systems. For example, it could be applied to other chronic health conditions or to areas outside health such as community change or at organisational levels (e.g., for organisational development or change management).

Translating an action research community and organisational change model into an application for individual weight management

The community and organisational change model developed by Dick (2001) was applied as the action research methodology underpinning the MCMD model. This application of a community and organisational change model not just to individuals, but to another field, weight management, could be regarded as a contribution to knowledge.

Summary

Ultimately, a system-wide approach that includes a focus at a population as well as an individual level is the ideal solution to reduce the global prevalence of obesity. However, this research was only able to focus on the development of an individual MCMD approach to obesity management in clinical settings.

The primary meta-components of the model that was developed included the client, practitioner, and the environment. These meta-components were conceptualised

as systems and the components of these systems (secondary components) as sub-systems and so on. The obesogenic environment was conceptualised as the larger system in which the systems of the client and practitioner were couched. The process system incorporated the processes that connected the practitioner, client, and environment systems. The action research methodologies underpinning the process system allow the systems and subsystems to alter dynamically in relation to the characteristics and needs of the client. This allows the approach to be tailored to the practitioner, client, and environment in a responsive manner.

Representative disciplines to be involved in the approach included, but were not limited to, medicine, psychology, exercise science, and nutrition and dietetics.

The complexity of the primary and secondary components of the approach identified through qualitative modelling was consistent with the qualitative modelling of the Foresight Maps. Like the Foresight report, the analyses conducted in this inquiry confirmed that a systems perspective was the most practical framework on which to base this MCMD approach.

The next step in the development of the MCMD approach is the implementation and refinement of the model. As discussed in the text above numerous barriers confronting the MCMD model were highlighted by both stakeholders and the literature. The most important barriers were identified as: funding issues; professional role and boundary issues; and inadequate training in obesity, strategies for working in a MD team and processes for delivering an obesity management program. Considering the benefit of long-term support in optimising weight management outcomes, funding issues will be a primary consideration during the implementation phase of the MCMD approach for weight management.

Overall, this inquiry confirmed the complexity of obesity and its management. The individual-focused, systems-based MCMD approach that evolved during this thesis research was predicated on stakeholder opinion and triangulated with the literature. The collective data indicated multiple entry points for interventions that could impact obesity management. Potential entry points included: the individual and the practitioner (the focus of this research), the federal government, the food and beverage industry, universities and training institutions, professional bodies, the built environment, marketers and advertisers, the consumer society, the café culture and the list goes on. The ultimate solution would involve a collaboration of all areas. However,

at this point collective initiatives are not feasible. My intention is to pursue ongoing development of the model through an implementation phase and ultimately offer the MCMD approach to health care professionals as a viable and practical approach to obesity management in clinical settings.

Chapter 7: Using theories of action to reconcile the theory-practice gap when implementing the MCMD approach to obesity management

There is nothing so practical as a good theory – Kurt Lewin

7.1 THE THEORY-PRACTICE GAP

A seminal factor contributing to the thematic concern (Section 1.3.2) on which this research thesis was predicated related to the gap between theory and practice among practitioners. As noted in Sections 1.4.2 and 2.4.4 there is a gap between evidence-based recommendations founded on theory and what is actually implemented in clinical practice (Flodgren et al., 2010; Roth, 2006). Attributions for this disparity appear to be consistent across numerous applied areas of study (Tsui, 2013; Van De Ven & Johnson, 2006). Obesity experts believe evidence-based guidelines are too broad to be clinically useful (e.g., Kirk et al., 2012). Members of professional bodies such as nursing (Munten et al., 2010) believe research findings are not sufficient for practice. Experts in psychology justify a similar stand, pointing out that because something works in a research setting doesn't mean it will work in a clinical setting (Charman, 2005). Researchers in psychological clinical effectiveness suggest it may be common factors such as the alliance between the practitioner and the client that contribute to outcomes in practice not the theoretical model (Duncan et al., 2004). Applied fields unrelated to health make similar claims. For example, there is extensive research in management (e.g., Moisander & Stenfors, 2009) proposing that many theoretical guidelines are impractical in the world of practice and that this problem has reached a world-wide scale (Tsui, 2013). There are suggestions that although academic schools base their mission on developing a knowledge base that can be applied in practice, this mission appears to be more of an ideal than an achieved outcome (Van De Ven & Johnson, 2006). Along the same vein, Boyer (1996) accuses higher

education teachers of operating from "ivory towers", isolated from those they have researched and taught and isolated from those practitioners who should benefit from the knowledge they generate. Fox (2003) further describes a culture in the academic world that assumes the research is done when the thesis is finished or the paper is published. Fox also believes there is an assumption that practitioners will automatically take up the research academics produce despite evidence that the uptake of service-related research findings is poor. Trends in the obesity field reflect this status quo. The research literature on obesity has ballooned from 1100 articles in 1960 to 44,000 articles in 2013 without any reversal in obesity prevalence (Taubes, 2014). This suggests a poor transfer of academic research relevant to obesity into practice. Collectively, these examples of discontent present a strong case for making more explicit attempts to reconcile academic theory and practitioner reality. A solution offered by Tsui (2013) is the idea of "socially responsible scholarship", an approach that ensures research contributes to both scholarship and practice. Tsui believes such an approach will resolve the current separation of research, training and impact that she believes is endemic to all schools throughout all universities.

Suggestions were proffered in Section 1.3.1 that a possible solution to address the gap between theory and practice was to test evidence-based research in practice settings as part of research programs. Such an approach offers the opportunity to translate research into solutions in the real world. Brownlie et al. (2008) support this approach. Like Tsui (2013), they recommend a move towards practice-related research programs in applied research areas such as management that "offer a richer and more penetrative treatment of context and process (p. 461). However, Fox (2003) warns that although this research approach develops a knowledge base for practice it continues to situate academic research evidence in a more powerful position than other forms of knowledge. Notwithstanding, such an approach would still be a positive step in the area of weight management, as most evidence-based trials are developed by researchers and not consultatively with practitioners or clients (Avenell et al., 2004a; Jakicic et al., 2012; Yaskin et al., 2009).

Another solution proposed in Section 1.3.1 was to train practitioners in generating practice-based evidence so they could learn from their own practice in a dynamic and responsive way, and inform practice-based evidence with evidence-based practice. Such an approach addresses some of the limitations identified above.

However, there are also barriers to this solution. For example, most professional bodies demand that practitioners only use evidence-based practice if they are to retain their registration status (Dietitians Association of Australia, 2008a, 2008b; Psychology Board of Australia, 2012; Q-Comp, 2008). Furthermore, there is inadequate training in generating practice-based evidence, and as pointed out above, there is poor translation of research evidence into practice (Dietitians Association of Australia, 2012a; Fox, 2003).

Based on observational and interview data collected during this research practitioners are interested in improving their practice in the obesity area and a collaboration between practice-based evidence and evidence-based practice appears to be the most germane option. This conclusion appears to have ample support. Fox (2003), for example, proposes that we "re-privilege" the role of the practitioner in being able to generate useful and actionable knowledge (i.e., practice-based evidence) that can be triangulated with evidence-based practice. Similarly, other researchers propose that researchers and practitioners coproduce knowledge to advance both theory and practice in any given domain (Realpe & Wallace, 2010; Van De Ven & Johnson, 2006). Van de Ven and Johnson emphasise the concept of "engaged scholarship" to ensure a genuine two-way collaboration between researchers and practitioners. His suggestion is aimed at ensuring that research generated through practice advances academic research. This approach is consistent with Tsui's (2013) push for "socially responsible scholarship". Honouring this approach, both Fox (2003) and Munten et al. (2010) champion action research as a methodology because it has the explicit intent of linking research and practice and implementing new knowledge.

The success of using action research methods to develop the initial design for the MCMD approach to obesity management during this thesis research, supports the utility of continuing to use action research methodologies to develop the theory underpinning the application and evolution of the model. The benefits of strategy tools drawn from action research methods include their ability to support ongoing individual and collective learning, to improve the efficiency of processes and to enable emergent features (Munten et al., 2010). Our rapidly changing global environment and the concomitant explosion of knowledge herald a crisis of "relevance" for any working model. This situation is ideally addressed by employing responsive methodologies that can generate innovative solutions and new competencies to meet ongoing change

(Brownlie et al., 2008). Using action research methods to focus on the theory-practice alliance increases the viability and relevance of the MCMD approach by closing the theory-practice gap.

The remainder of this chapter will expand on the theory development underpinning the MCMD approach to obesity management. As a working model, the MCMD approach is expected to evolve dynamically with use.

7.2 WORKING TOWARDS A THEORETICAL FRAMEWORK FOR THE MCMD APPROACH THAT CLOSES THE THEORY-PRACTICE GAP

The Free Dictionary defines theory as "a belief or principle that guides action or assists comprehension or judgement". Put another way, theory acts as a map for action and sense making. Fox (2003) endorses this view in stating "the value of theory will be in its applicability in immediate practical activities in settings in which it has been developed" (p. 87). The purpose of developing a theory for the MCMD model is to provide a guide for practitioners to conduct their own research on the application of the model in their real-world practice. The intention is to optimise the "relevance" and "currency" of the model by teaching practitioners, and potentially their clients, how to put theory into practice and practice into theory. By teaching the practitioner and client to be practicing reflectors (reflexive) they learn to access their own tacit knowledge to produce theories in action that are relevant to the prevailing context (Brownlie et al., 2008). Such an approach allows the implicit to be made explicit. In rapidly changing environments both practitioners and clients need this facility to be able to make quick assessments of situations and react proactively if they are to optimise outcomes.

Tsui (2013) accuses researchers of using theories "without critically analysing the accuracy of the theory's basic premises and its relevance to the problem being studied (p. 376). Tsui believes this can lead to the research being irrelevant to practice, as well as to knowledge. I elected not to use theories like complexity theory (discussed in Section 2.3.2, page 38) as an underlying theory for the MCMD approach. The literature is too large and contentious to review within the time constraints of this thesis research. Similarly, I did not explore how the proposed MCMD model could be applied in the context of current health management. This was considered to be an issue for the implementation stage of this model (post-doctoral), and not relevant to this thesis research. In deciding on a theoretical approach a single integrated theory was considered to be unlikely to support a MCMD approach for obesity management.

A series of relevant theories that resonated with both the practitioner and the client were considered to be more optimal. It was agreed that the theoretical approach should be flexible, practical and easily applied in practice to increase the likelihood that it is taken up by practitioners in the field. Acknowledging that practitioners may be reluctant to adopt practices that are overly complex it seemed logical to use action research methodologies that can be easily taught and applied.

The two approaches discussed here are action research and action science. Argyris and Schőn (1989) view action science and action research as members of the same action research family; the commonalities of the two approaches outweighs their differences. However, it is the differences that allows the two approaches to be combined in forming a stronger theoretical framework for the MCMD approach. Below is an overview of how action research can be used to generate theory through practice followed by the theory of action science. The purpose of offering a brief overview of action research when it has already been presented in chapter three is to provide a side-by-side view of the two approaches from a theoretical perspective.

7.2.1 Action research as a theory of action

The intention of this research was to use action research to develop a MCMD framework that could produce actionable theory, useful for practitioners and clients, and at the same time make a contribution to knowledge. Having achieved this goal, the intention is to now develop a theoretical base for the implementation and ongoing evolution of the MCMD model in routine practice. Action research was chosen as a theoretical framework because it is less constrained by existing theory compared to other research methods (Dick, 2003). Fox (2003) believes theory building should be a necessary part of developing understanding but should be viewed more as an addition to practice not an end in itself. The following paragraph shows how action research enables this.

Dick (2003) describes action research as an emergent methodology that amasses understanding (actionable knowledge) gradually through iterative cycles. Dick emphasises that not only is the content (developing theory) emergent, but so are the processes or strategies. Dick also explains that data analysis, interpretation of data and theory building occur at the time of data collection. This feature allows the practitioner to derive theory from practice, responsively and in collaboration with the client, in clinical settings (Freshwater, 2005). The theory-practice axis can then be further

elaborated by promoting a collaboration between evidence-based practice and practice-based evidence (Fox, 2003). The participative qualities of action research facilitate shared understanding and commitment among stakeholders which in turn motivates collaborative action (Dick, 2003). The responsiveness of action research methods to the emerging needs of a situation is a valuable asset in an ever-changing world (McIntyre, 2008).

Another benefit of using action research was its ability to function as a meta-process under which other methods for data collection can be managed. This study drew data from interviews, observation and the literature. The data was distilled through successive action research cycles for the purpose of sense-making, model building and theory development. The use of multiple methods facilitated triangulation of the data and optimised rigor. This facility was particularly relevant because the stakeholder group that acted as co-researchers in generating actionable knowledge was quite diverse.

Overall, the current research program confirmed that obesity is complex and does not lend itself to precise formulations. The data corroborated that the obesogenic environment (a product of a rapidly changing global economy) has significantly contributed to both the causation and maintenance of obesity. From a client perspective the factors contributing to their obesity impact at the boundary between the client and the environment. These factors are different for everyone and vary across time and context. For example, a television advertisement for ice cream only impacts on the client when they are watching television. This suggests that practitioner and client need to work more effectively with the environment that interfaces the client with the rest of the world. Taubes (2014) views this as a deficiency in obesity research to date. As no single practitioner has a full understanding of all relevant systems impacting on a client more than one practitioner will be needed to optimise obesity management outcomes. To manage the interdependencies between multiple practitioners and the client a coordinating practitioner will likely optimise the MCMD approach. To deal with the complexity of multiple practitioners, as well as multiple components, theoretical flexibility was considered to be crucial. Therefore, a key advantage of action research was it allows the MCMD model to be refined through cycles of trial and error in establishing what works with different clients in various contexts. These action research cycles are described in more detail next.

Iterative cycles

The flexibility and sense-making opportunity offered by action research is facilitated by the process action research uses. The most important component is the iterative cycle depicted in Figure 7.1. The overall action research cycle for this research will be closed when the model is implemented, the outcome observed and a review is conducted that refines the model for another cycle of implementation and further refinement. However, as noted at the commencement of chapter 3, the implicit assumption in using an action research methodology is that the cycles of inquiry will

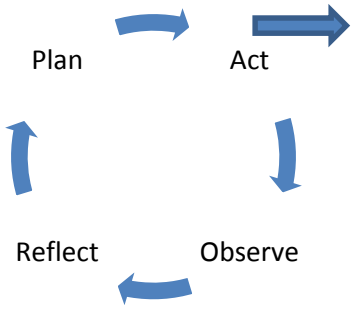

Figure.7.1. Action research cycle.

always be incomplete. Just as I was not clear what the end model or process, or theory, would look like nor will practitioners when implementing the model with their client. I formulated the MCMD model through iterations of trial and error during the thesis research. Similarly, the model will undergo ongoing iterations of refinement when practitioners apply it during their practice. It is accepted that a stakeholder will not know if the MCMD approach, or theoretical underpinning, works until they try it in in the context of a particular workplace and with individual clients. By articulating the theory of action underlying the MCMD approach the stakeholder will have access to a rationale for choosing one action or strategy over another. The rationale they will use in making these decisions becomes the theory of action in that context and for that person.

Nested cycles

Although the larger action research cycle was not closed in this research thesis, this research was composed of smaller cycles within cycles referred to as nested cycles (Dick, 2000b). These cycles can be to any depth in any action research cycle. The iterations within each cycle enable the issue at hand to be fully and flexibly explored in any context. The layers of nested cycles in this research helped make sense of the

data. Utilising the concept of nested cycles informs a person about their practice and changes their practice to match the prevailing context (Kemmis, McTaggart, & Nixon, 2014).

Applying action research to practice

These same action research processes (e.g., iterative cycles and nested cycles) used to generate the MCMD model have the flexibility to be used in the field during implementation. This application of action research is explicated in Section 6.2.3 above using Dick's (2001) change management model. By way of example, when applied to obesity management, the initial cycle starts with an initial assessment (situation analysis) and agreement on weight management goals (goal setting). An action plan (action planning) to facilitate those goals, and a monitoring plan to ensure the client remains 'on track' (monitoring plan), is then collaboratively devised. The client goes away to implement the actions. At the next session the client reviews their actions with their practitioner and both goals and future actions are revised. These iterations continue throughout the weight management journey for the client and are applied not just for the client-practitioner relationship, but by the client in their own world. Teaching the client the theory of action on which the MCMD approach is predicated provides a rationale that helps them respond proactively to lapses, triggers and other destabilising events outside therapy. The rationale they use in making decisions about these actions becomes the *theory of action.* This approach equilibrates the power balance between practitioner and client, and provides the client with a *theory of action* that empowers them manage their own change process.

Case studies

The utility of using a flexible action research methodology for the MCMD approach was evidenced in informal field work conducted in my own practice. Two case study summaries are presented as examples.

Client One: Mandy was a single 27-year old morbidly obese female who presented wanting to improve her self-esteem and to lose weight. Mandy lived at home and worked in a call centre. The MCMD approach was explained to Mandy. Assessment indicated that Mandy had clinically significant mental health issues including obsessive compulsive disorder, social phobia and binge eating disorder, as well as morbid obesity. These conditions were impacting on the quality of her life and contributing to her longstanding resistant obesity. Other relevant issues included

financial debt, job dissatisfaction, loneliness and social isolation. Collaboratively we prioritised her treatment goals. First priority was assigned to addressing Mandy's mental health conditions. Mandy was provided with psycho-education about her conditions and the rationale for potential treatment options was discussed. Mandy chose treatment strategies that resonated with her and applied them. Mandy reported achieving positive mental health outcomes. For example, she stopped leaving work early because she feared having a heart attack (an obsessive compulsive thought). These outcomes, in turn, led to Mandy also reporting increased confidence and self-esteem. Evidence of her increased confidence was evidenced when she then independently enlisted the services of a debt management and budgeting service to help regain control of her finances. She also initiated social meetings including a meet-up group for people with social phobia, a church group and a Buddhist centre. Attending the social phobia group allowed Mandy to determine that her social phobia was not as severe as other people. This action and reflection generated more confidence and inspired her to attend the Buddhist meet-up groups and ultimately, the Buddhist centre. Mandy decided that she did not resonate with aspects of the church and was more aligned to values inculcated by Buddhism. Subsequently, she committed to participating in regular Buddhist teachings. The teachings at the Buddhist centre were consistent with the therapy we were using (Acceptance and Commitment Therapy), serendipitously increasing the dosage of treatment Mandy was receiving. As a result of her actions, Mandy reported being able to manage her anxiety more effectively and to live in the now. Mandy was observed to develop a more positive and philosophically oriented outlook on life and became more accepting of herself. She described life as having more meaning. Of her own volition, Mandy then joined a gym and commenced a weight loss eating program. Within ten sessions of therapy she had lost 10kgs, resolved her OCD, BED and social phobia, managed her debt and increased her social network. This was done using the MCMD change model.

Reflection: The flexible, responsive and forgiving nature of the underlying change model used as the operating process for the MCMD approach allowed Mandy to work with multiple goals (nested cycles) and to prioritise and modify these goals. The ability to modify these goals after action was self-empowering. Instead of having to focus on weight loss, Mandy's "wins" in other areas provided the traction for her to ultimately work with her weight when she was ready (generalisation). The components

we worked with included weight, nutrition, psychology, social issues, finances, religion/philosophy and fitness. The health disciplines she accessed included medicine, nutrition and dietetics and psychology. However, the services she accessed included a budgeting/finance management organisation, meet-up groups, a church and a Buddhist centre. I acted as the coordinator and coach.

Client Two: Judith presented for treatment of depression and morbid obesity. She was 65 years old and divorced. Her mobility was poor and she ambulated with a walking stick. At the time of her first session she was living alone in a house her daughter owned. Judith felt isolated, unwanted, useless and worthless. She was anxious about her finances and was disillusioned with her efforts to find employment and lose weight. The MCMD approach was presented and we established collaborative goals. We prioritised her first goal as finding more suitable housing that would also enable her sister to live with her. We also discussed strategies to have two houses she owned in Northern NSW to be prepared for rental. Completing these tasks reduced Judith's financial pressure considerably and introduced social support. Judith then self-initiated an energy controlled meal service and lost 15kgs. Her weight loss enabled her to walk without her walking cane. She reported accepting that she was retired and didn't have to work. However, over the Christmas period she relapsed and her depression resurfaced. Using the basic action research methodologies she was able to learn from her lapse and replan a path that would minimise the likelihood of relapse. She has now lost 21kgs, and is reconsidering her intention to retire and is looking for employment.

Reflection: The iterative cycles are a fundamental component of action research. "The cycle is a natural and logical way of responding to a complex and therefore uncertain situation that requires action (B. Dick, personal communication, December 31, 2014); it parallels the way people problem solve a situation. In Judith's case, she relapsed (an action), discussed her action in session with me (review) then established a new plan to prevent relapse in the future (planning). This iterative facility within action research gave her permission to learn by doing and became a template for continuous improvement. Accepting that learning to lose weight through trial and error mitigates against the "all or nothing" thinking that is cited as a common reason for relapse (Cooper et al., 2004). Like Mandy, Judith found the process self-empowering.

Meta-reflection. The experience of Judith and Mandy supported the outcome of this thesis research in viewing the MCMD approach from a systems perspective. As cited by Kurt Lewin, "You cannot understand a system until you try to change it" (Schein, 1996). By working iteratively through cycles of plan, act and reflect Mandy and Judith began to manage issues they previously viewed as unmanageable. Not only did cycles of trial and error nested within each system in question (e.g. financial or mental health) allow Judith and Mandy to refine their approach to a problem by identifying what worked, it placed them in control of managing their own lives. Acknowledging their own role in their change process was reinforcing and empowering. Research has shown that when people believe they are the agent behind change in their own lives they are more likely to sustain that change (Duncan et al., 2004). This outcome was observed in these two case summaries.

Studies in psychotherapy have shown that the majority of change occurs in the first six to eight sessions (Duncan, 2012). The iterative cycles of action research allow the client to monitor change in a tangible way from the commencement of treatment and to chart new courses when something is not working. The longer treatment continues without measurable change, the higher the likelihood of drop out occurring (Duncan, 2012). The ongoing monitoring built in to action research methods mitigates against this.

As noted, the complexity of obesity calls for the MCMD approach to be based on a series of integrated theories. The case studies suggest that cognitive processes and interpersonal issues are an integral component of relapse. To maintain consistency I have elected to use action science, another methodology within the suite of action research methods, as a theory to support action research. Action science focuses on interpersonal relations and cognitive processes (Foote Whyte, 1991).

7.2.2 Action Science

The theory-practice gap has been blamed on knowledge transfer problems (Van De Ven & Johnson, 2006). As elaborated above, academic researchers have been criticised for not focusing strongly enough on the transfer of the knowledge they produce to the real world (Fox, 2003). Similarly, practitioners have been accused of not accessing and appropriately applying evidence-based guidelines (Fairburn & Cooper, 2011). To address this conundrum of knowledge transfer, Argyris and Schőn (1978) believe that research knowledge will only be implemented if researchers and

practitioners collaborate in interpreting and actioning research findings. This collaboration will require a focus on interpersonal relations between researchers and practitioners and on intra-psychic characteristics. To show how action science can contribute to closing the theory-practice gap, and optimise the effectiveness of the MCMD model, an overview of action science is provided next.

Introducing action science theory

Action science is a theory of action predicated on the concept of human beings being the designers of their own actions and therefore their own lives (Argyris & Schőn, 1974). Action science utilises a process of inquiry to promote reflection on the reasoning and attitudes which underlie human action with a view to producing more effective learning in individuals, groups, organizations, and other social systems. Through this inquiry on practice, the action scientist seeks knowledge that will be actionable. Argyris and Schőn (1974) summarise their theory of action as follows:

"Theories of action are theories that can be expressed as follows: In situation S, if you intend consequence C, do A, given assumptions $a_1 \ldots a_n$. Theories of action exist as espoused theories and as *theories-in-use*, which govern actual behaviour. *Theories-in-use* tend to be tacit structures whose relations to action is like the relation of grammar-in-use to speech; they contain assumptions about self, others, and environment — these assumptions constitute a microcosm of science in everyday life (p. 29-30)."

A key feature of Argyris and Schőn's (1974) theory of action is the proposition that people establish goals and then design action to achieve intended consequences (consistent with the change model in Figures 6.6 and 6.7). However, before deciding to act, a person constructs a basic representation of the environment and establishes a manageable set of causal theories that informs how best they can achieve an intended outcome. To improve efficiencies the person calls on a range of established concepts, schemas and strategies (mental maps) to assist in making representations of the environment and to guide how they plan, implement and review their actions. These mental maps or design programs are programmed in and become theories of action (discussed next). The effectiveness of actions are monitored as are the constructions they developed about the environment in light of action.

Theories of action: mental models - theory in use and espoused theory

As presented in the quote above, a theory of action states what a person will do to achieve a desired outcome (consequence) in a particular situation (Argyris & Schőn, 1974). There are two kinds of theories of action – *theory-in-use* and *espoused theory*. *Espoused theories* are what we say we do or would like others to think we do. An example of an *espoused theory* would be asking an academic in obesity why they conduct research and their response indicating that they want to make a difference and contribute to a reduction in obesity prevalence. Meanwhile, they have never applied their research outcomes in practice. On a more practice-based level, an example of an espoused theory would be asking an obese client how much they eat and their self-report indicating their *espoused theory* of what they eat, and not what they actually eat (*theory-in-use*). *Theories-in-use* govern actual behaviour and contain assumptions about self, others and the environment. *Theories-in-use* can be inferred from action and are what a person actually does. Argyris et al. (1985) emphasise, "our distinction is not between theory and action but between two different theories of action (the mental map underlying why people do what they do): those that people espouse, and those that they use" (p. 82). The purpose of differentiating the two different theories of action is to emphasise that people's actions are not an accident. Actions are designed by the person implementing them thereby implicating the person as responsible for the design of their action. This knowledge allows the person to intervene in their own change.

Espoused theory and *theory-in-use* may be consistent or inconsistent (Argyris et al., 1985). A person is aware of their *espoused theory* because this is what they say they do. However, people are often unaware of *theories-in-use* (Argyris, 1980). Argyris (1980) claims that increasing personal effectiveness arises when congruence between our *theory-in-use* and our *espoused theories* is achieved. For example, a person may admit that they are drinking a bottle of wine a night instead of the two glasses they previously reported, by reflecting on the impact of their high alcohol consumptions on their health during therapy. This acknowledgement will assist the client in seeking more effective strategies than drinking to manage their stress. Reflection has a key role in determining the fit between a person's *theory-in-use* and their *espoused theory* (Argyris & Schőn, 1974). It closes the theory-practice gap.

Although *theories-in-use* can be made explicit by reflecting on action, reflecting is also moderated by *theories-in-use* (Argyris et al., 1985). To address this the action scientist reflects on *reflection-in-action* to identify the *theories-in-use* that are moderating the reflection. This meta-reflection allows the action scientist to create new *theories-in-use* for reflection as well as action.

To fully explore theories in action, Argyris et al. (1985) introduced the concept of nested theories to explain how theories of action become embedded (this is similar to the nested cycles in action research discussed in Section 3.1.1). Argyris and Schőn (1974) also introduced models to help agents of action (e.g., individuals, groups, and communities) reflect on their *theories-in-use* and learn new, more adaptive *theories-in-use*. The aim of the model is to help agents identify and understand the features of theories of action that promote or inhibit learning. In so doing, action scientists are interested in ensuring the individual, group, organisation or community effectively intervene in behavioural systems to achieve desired goals. This model is discussed next.

Modeling theories in use. Argyris and Schön (1974) proposed the following model of processes involved in using *theory-in-use* (refer to Figure 7.2). The model is composed of three elements: governing variables, action strategies and consequences.

Figure 7.2. Model of Theory-In-Use

Governing variables: Argyris et al. (1985) describe governing variables as the values people are trying to satisfy through their action. Governing variables are continuous variables with an acceptable range. For example, a person may view extreme anger as unacceptable and attempt to manage it in a preferred range. There are many governing variables that our actions can impact on. This leads to trade-offs where one governing variable is assigned a higher value that lowers the value of the other governing variable. For example, a person may value healthy behaviour but feel uncomfortable with an unsatiated craving and seek to act on the latter value at the

expense of the former. Identifying this conflict between governing variables that influence action can produce learning.

Action strategies: Argyris et al. (1985) describe action strategies as the plans and actions used by people to keep their governing values within the acceptable range.

Consequences: Consequences are the result of actions. Argyris et al. (1985) point out that the consequences can be intended or unintended, productive or counterproductive. Consequences feed back to the action strategies and governing variables. Expanding on the example above, satiating a craving because of the discomfort one feels will lead to the intended consequence of reducing the craving but it will also trigger ongoing craving, potential for weight gain and increased blood sugar levels in those that are diabetic. These consequences lessen the governing value of health.

Argyris et al. (1985) propose that consequences of action depend on *theories-in-use*. *Theories-in-use* provide useful insights into what people are like and how they are likely to respond in certain situations. A *theory-in-use* is confirmed when there is a match between intention and outcome and where the consequences of the strategy used are what the person wanted. However, when the consequence is unintended (mismatch between intention and outcome), this works against a person's governing variable. Argyris and Schön (1978) employ the notion of single and double-loop learning to explore two possible responses to this mismatch.

Single-loop and double-loop learning

If there is an unintended consequence (outcome) produced by an action strategy the usual response is to find another action strategy to satisfy the governing variable. For example, if someone wants to optimise their health (governing variable) and therefore avoids eating sugary foods (action strategy), but is offered birthday cake at work afternoon tea (potential for mismatch) they may implement the strategy of declining using the excuse that they just ate lunch and were not hungry. Implementing a new action strategy to satisfy the governing variable is referred to as single-loop learning; the action strategy changes, but not the governing variable (Argyris et al, 1985).

An alternative response is to question governing variables themselves. This is described as *double-loop learning*. Double-loop learning may lead to a change in the

governing variables and, subsequent change in the way in which strategies and consequences are framed. Thus, in the example above, the person may decide to act according to a new governing variable of social inclusion, in lieu of their previous governing variable of health, and accept the cake and consequences of eating sugar.

In summary, when a person identifies a mismatch between intention and outcome, they can correct this to ensure they achieve their stated objectives around weight loss. This error-and-correction process is *single-loop* learning. The focus is on using reflection on consequences to improve the efficiency and effectiveness of action strategies. *Double-loop* learning occurs when error is detected and corrected in ways that involve the modification of a person's goals, values, frameworks, and norms for behavior (governing variables). Double-loop learning involves questioning the governing variables. The basic assumptions behind ideas or norms for behavior are confronted, hypotheses are tested. It is more creative and reflexive. Double-loop learning is important in informing decisions in rapidly changing and often uncertain contexts (Argyris & Schőn, 1974). However, as shown in the example provided the outcome can be positive or negative, depending on the person's willingness to uphold their intended values. To explain this, action science assumes that there is a *theory-in-use* or *mental model* behind every action, a type of logic that happens inside one's mind. Argyris and Schőn (1974) describe two major types of mental models which they refer to as model I and Model II.

Model I and Model II.

Models I and II are two models that describe features of *theories-in-use* that either negatively or positively impact on double-loop learning.

Model I relates to the belief that all people use a common *theory-in-use* in problematic situations. Model I is said to inhibit double-loop learning. Most people operate from *theories-in-use* or values consistent with Model I (Argyris et al., 1985). This involves making assumptions about another person's behavior or a situation without checking whether these assumptions are valid and making blanket statements about situations without adequate or logical reasoning. An example would be believing a hostess will be offended if you do not eat the dessert she has made for dinner. You eat the dessert even though you don't want to. Model I behaviours are characterized by defensiveness, self-fulfilling prophecy, face saving, self-censorship and escalating error (Argyris, 1982).

Model I leads to deeply entrenched habits that Argyris (1990) calls *defensive routines*. *Defensive routines* reduce one's vulnerability to the reactions of others. Acting defensively is controlled by external circumstances and not ourselves, limiting our potential for learning from this and other situations. Argyris describes a defensive routine as a "moving away" behaviour, either moving away from something outside ourselves, or from something about ourselves that we don't wish to confront. For example, if we don't want to be seen as incompetent or under-confident we may hide things from others and even ourselves to avoid feelings of incompetence or under-confidence. Argyris says that defensive routines ultimately cause us to be controlled by what we are moving away from, not by the person or what we would like to "move towards". An obesity-related example would be when an overweight or obese person tells people that they are "fat and happy", or blame stress for their weight issues. This pattern, Argyris says, maintains the behaviour and reduces potential for growth. Defensive routines are often very powerful and can only be managed when they surface, which is usually during a crisis or at a crisis point (Argyris & Schőn, 1989). This is where action science can really benefit the client. The action scientist is essentially an interventionist who intervenes in client systems by helping the client to create and learn to change in ways more consistent with the values and theories they espouse (Argyris et al, 1985). Put more simply, action science helps the client to practice "values in action" (Dick & Dalmeau, 1990) and to attain what they really want.

Model I behaviour relates to practitioners and researchers as well as clients. Argyris and Schőn (1989) warn that when researchers or practitioners are unaware they are adhering to Model I *theories-in-use* they may miss the opportunity to intervene and effect constructive change in a client's life. Practitioners may use *theories-in-use* that are not obvious on the surface. Examples include *theories-in-use* centred on "virtues" such as "caring" (perhaps learned as a virtue in early life) that encourage client dependency despite minimal outcomes from the service, or defensive routines that minimize conflict and culminate in the practitioner not challenging the client's defensive routines (another defense also usually learned earlier in life).

Argyris (1982) claims that people need to be moved from Model I to Model II to facilitate change. This enables governing values to be challenged so new action strategies can be applied to achieve positive and self-directed outcomes in changing

circumstances. To move to Model II the individual needs to conduct an inquiry so they can resolve incompatible norms of behaviour. Potential strategies include establishing new priorities and norm weightings or to develop new norms. In summary, Model II is where the governing values associated with *theories-in-use* enhance double-loop learning. A relatively new therapy in psychology, acceptance and commitment therapy, includes a focus on using values as a way to commit to new behaviours including those related to weight loss (Forman, Butryn, Hoffman, & Herbert, 2009). This therapy has the potential to amplify action science processes.

Applying action science to the theory-practice gap

Just as practitioners can be accused of using Model I theories-in-use and miss opportunities for positive change, so can researchers and regulatory bodies. Beer (2001) believes researchers should confront their theories-in-use and take responsibility for how the knowledge they produce can be applied in practice. Beer also challenges accepted knowledge transfer regulations and practices that hinder solving the theory-practice gap including the authoritarian style of some regulatory bodies (see Section 2.4.4) that demand a commitment to evidence-based practice. Difficulty in implementing research evidence, as elaborated above, is a universal problem across applied areas of study. Argyris and Schőn (1989) argue that if social scientists lean towards the rigour of traditional science they "risk becoming irrelevant to practitioners' demands for useable knowledge" (p. 612). Beer concurs and describes research information as "useful, but not useable". He attributes this to research and theory generated at an academic level not taking human factors at the point of implementation into consideration. Beer emphasizes, "It cannot be said that inadequate theory or lack of rigorous research is the cause of implementation failures" (p. 59). Instead, he says that "for knowledge to be implementable, the root causes of the status quo must be understood and broken down" (p. 60). This is where action science becomes valuable because root causes are often related to the skills, norms, rules, values and behaviours of the end user (Argyris et al., 1985). These factors may be critical barriers to the implementation of new knowledge. However, Argyris et al. explain that challenging these factors may be threatening or embarrassing. Argyris et al. refer to these factors as "undiscussable" and explain that by not discussing the "undiscussable" the status quo is maintained. The advantage of action science is the provision of processes take defensive routines into consideration and facilitate the

discussion of the "undiscussable". Action science reveals an individual's tacit knowledge about why and how they do what they do (Beer, 2001). Knowing the values, norms and defensive routines (underlying assumptions and beliefs) that prevent implementation of interventions allows practitioners to help clients generate solutions to address these barriers. Beer (2001) believes that practitioners need a good knowledge of action science and interventions, as well as a high level of interpersonal skills, to successfully implement strategies from action science.

7.2.3 Combining action science and action research

Action science as a form of action research shares the values and strategies of action research, but also places a significant weight on the implicit *theories-in-use* that clients bring to practice and research (Argyris & Schőn, 1989). These *theories-in-use* include "strategies of unilateral control, unilateral self-protection, defensiveness, smoothing-over, and covering-up, of which their users tend to be largely unaware" (Argyris and Schőn, 1989, p. 613). Argyris and Schőn warn that the dysfunctional and tacit nature of these strategies can distort the findings that emerge during action research cycles. As already noted, distortion is created by the client's as well as the researcher's and/or practitioner's *theories-in-use*. Change is more likely to be achieved if all actors in the process proactively address their *theories-in-use.*

Foote Whyte (1991) wrote an article comparing action science and action research. Foote Whyte described action science as a process that relied on "interpersonal relations and intrapsychic processes" (p. 97). His understanding of action science was that a detached observer needs to record these processes during the implementation process and use the data to inform the intervention process. Foote Whyte further states that this approach also assumes that an appraisal of cognitive factors that may impact on the implementation of an intervention should precede the action. However, Foote Whyte rejects this idea and cites examples from a paper written by Argyris and Schőn (1989) where new lines of action that satisfactorily solved problems (action research) emerged first and generated new ways of thinking and feeling. These new ways of thinking and feeling, in turn, supported new lines of action. This supports the case of combining action science and action research and not using them as sequential processes.

In contrasting action science and action research, Foote Whyte (1991) says that unlike action science, action research processes do not require an observer. Another

difference highlighted by Foote Whyte is that action science requires the practitioner to be in charge of the research and the implementation of the intervention. Action research, on the other hand, is designed for greater levels of participation and collaboration among researchers, practitioners and clients. These points of difference can be addressed in a way that allows the theories to be used concurrently in the MCMD model. Teaching all parties (researchers, practitioners and clients) the rudiments of action science and action research allows each party to be their own observer of their interpersonal relations and intrapsychic phenomena and to respond in a responsive and dynamic manner through iterative action research cycles.

Foote Whyte (1991) challenged Argyris on the construct of "undiscussibility" as well. He believes Argyris focuses on "social undiscussibility" and not "structural undiscussibility". Foote Whyte defines the former as topics that may embarrass or upset clients and the latter as the prevailing norms of behaviour the client uses to influence their actions. Argyris agreed that it would be more useful to consider both forms of undiscussibility as potential barriers to change (Foote Whyte, 1991).

A more detailed synopsis of how action science and action research can be achieved is beyond the constraints of this research. Refer to Dick and Dalmeau's (1990), "Values in action: Applying the ideas of Argyris and Schőn, for a detailed overview.

7.3 SYSTEMS THINKING – ANOTHER LAYER

Section 6.2.2 details how systems thinking could be used as a theoretical framework for the MCMD approach. The part of the system that the MCMD approach focuses on is the individual and the individual's micro-environment. However, this current chapter highlights the importance of considering the systems of the researcher, teacher/educator and practitioner, as well as the client, in closing the theory-practice gap. Again, it is beyond the constraints of this thesis to elaborate in depth on systems thinking. Only a cursory overview is provided below for another theory that will optimise the MCMD approach.

A brief history of systems thinking

Systems thinking developed as a concept last century in response to limitations of reductionism (Flood, 2010). Reductionism studies phenomena by breaking them down into their parts and analysing linear cause and effect relationships. Systems

thinking, on the other hand, argues that true knowledge and meaningful understanding of phenomena requires taking a big picture view of inter-relationships and looking at processes of change rather than snapshots (Senge et al., 1994). Systems thinking is predicated on the belief that the world is systemic. Flood (2010) describes *emergence* and *interrelatedness* as fundamental components of systems thinking. He says emergent properties of a system arise when the whole cannot be understood on the basis of its parts. This understanding goes back to Aristotle who is reported to have coined the following phrase: "The whole is more than the sum of its parts". This phrase till applies today. However, as systems theory has evolved reference to the *whole* and *part* has been replaced with that between *system* and *environment* (Luhmann, 1995).

Applying systems thinking to obesity

Systems thinking offers a way to address systemic problems such as economic globalisation and degradation of our environment (Barton, Emery, Flood, Selsky, & Wolstenholme, 2004). The obesogenic environment is a dysfunctional outcome of economic globalisation that has contributed significantly to the development and maintenance of obesity (Swinburn et al., 2011). This situates obesity as a systems problem that could ideally be best approached by informing practice with systems solutions and not non-systemic advice and prescription.

This thesis research employed qualitative modelling to construct meaning resonant with stakeholder's experiences of obesity and its management. The interpretations provided by stakeholders were made through cognitive processes (as discussed in the section on action science) and were therefore subjective. This suggests that using systems concepts like emergence and interrelatedness is a useful way to construct meaning of phenomena like obesity in a systemic world (Flood, 2010).

Parts of a system (i.e., sub-systems) are interrelated through feedback loops. Feedback loops are a component of systems thinking. There are negative feedback loops with balancing loops and positive feedback loops with amplifying loops (Flood, 2010). Balancing loops are depicted by homeostatic mechanisms like the maintenance of body temperature and pH levels in the body. For example, when you get hot, sweating may be triggered to cool the body. Amplifying loops can lead to the ongoing development or escalation of a trend that could be desirable or not desirable. A person, Flood explains, establishes a "steady-state" through the interaction of balancing and amplifying feedback loops. This interplay creates an emergent whole.

Obesity is an example of a system that operates in this way. The preliminary MCMD model is comprised of interrelated systems associated with obesity. This enables the MCMD approach to be used as a template or roadmap for determining actions to help stakeholders manage obesity.

Systems thinking and action research

There has been a proliferation in the number of systems schools in the last few decades (Barton et al., 2004), highlighting the importance of adopting a flexible and user-friendly systems approach. Based on the data collected in this thesis research a systems approach that favours non-linear behaviour, emergence and acceptance that system states are not in equilibrium (Rutter, 2011) would be the most functional. Many of the problem-solving strands of systems thinking focus on learning and see the process and its impact on stakeholders as more important than focusing on outcomes (Barton et al., 2004). The application of action research and action science to systems thinking provides an approach or situation that could allow the practitioner or researcher to collaborate with the client in managing processes relevant to obesity management. Further exploration of the use of systems thinking combined with action science and action research will occur during the implementation stage.

7.4 REFLECTIONS AND LEARNING OUTCOMES

During my postgraduate training in psychology, a lecturer mentioned a quote I have never forgotten: "Wherever you start is the wrong place. However, it tells you where to go next." The journey of this thesis research mirrored the quote, and confirmed the efficacy of using action research methodologies for this seminal research. The action research process trained me to not have fixed ideas about what I planned to do or expectations about outcomes. Instead it taught me to respond dynamically and proactively to the data in the moment and emphasised the power of co-production or participatory processes. As outlined in Appendix A, my initial intention was to develop a weight management program based on information from multiple disciplines that I would then test in online and offline situations. This linear, relatively non-consultative approach that planned to analyse cause and effect as a way to contribute to the evidence base, morphed into a consultative, non-linear systems-based dynamic using action research methodologies. Why? I learned that rigid or dichotomous thinking does not suit the complexity of obesity. In fact, upon reflection,

I could see that I initially approached this research with the same thinking with which my clients approached their weight loss. This approach would obviously not work.

I returned to university to study the problem I was experiencing in my role as a practitioner, so being able to research a problem directly related to my practice was motivating and worthwhile. Being able to involve others (clients, researchers, experts) in a collaborative investigation of the problem confirmed that I was not alone in viewing obesity management as a problem. This finding endorsed the salience of the research and provided further motivation to pursue solutions for the problem. At the end of the thesis I could see that I was actually using a research version of the MCMD approach to develop the actual model. My stakeholders were my MD team, and the data they generated formed the components I focused on during the research process.

Using action research methods allowed me to enter the "real world" to capture a database of knowledge that would have been difficult to elicit using quantitative methods. The convergent interviewing technique used an open ended opening question that ensured the data was provided by the stakeholders and not me. Using nVivo to analyse this data facilitated a process that allowed the patterns in the data to emerge. To use a biological metaphor, it was a bit like watching a foetus develop. The pattern formed during data analysis provided the framework on which to lay the ensuing data. I viewed the process as ethical because it involved the people with direct investment in the problem of obesity in the generation of a potential solution that could help many others.

As Reason and Bradbury (2008) state, the purpose of action research, is not to change others but to change with others. I believe that I changed as a result of this thesis, both personally and professionally. For example, I have learned to think systemically and dynamically. I, like the stakeholders, did not acknowledge the impact of the obesogenic environment on weight management prior to this research. Instead, I operated at the client, practitioner, and process level. My practice was not based around a clear process model for obesity management. I used the formulation approach in which psychologists are trained, as well as other evidence-based approaches such as enhanced cognitive behavioural therapy and acceptance and commitment therapy. The systems approach of the MCMD model has offered a "big picture" framework while allowing for a focus on individual parts. Even from the perspective of the individual practitioner (or client), if the system effects are understood you are better

able to take them into account. For instance, even though one may not be able to influence the larger system, they can influence the micro-system. It is possible to devise strategies such as behavioural interventions that address what might otherwise be invisible but are actually important systems effects. I believe that the flexibility and responsiveness of the action research methodology offers an efficient way to marry evidence-based practice with practice-based evidence. The responsive and dynamic elements of action research will also undoubtedly enable the MCMD model to evolve over time.

Abid, A., Galuska, D., Khan, L. K., Gillespie, C., Ford, E. S., & Serdula, M. K. (2005). Are healthcare professionals advising obese patients to lose weight? A trend analysis. *Medgenmed: Medscape General Medicine, 7*(4), 10-10.

Abramson, R., Garg, M., & Meghreblian, M. J. (1980). Behavior modification for obesity: Effect of therapist-patient relationship. *Psychosomatics, 21*(8), 675-683.

Access Economics. (2008). The growing cost of obesity in 2008: three years on: Diabetes Australia.

Aiello, L. C., & Wells, J. C. K. (2002). Energetics and the evolution of the genus home. *Annual Review of Anthropology, 31*(1), 323-338.

Ajala, O., Hosking, J., Metcalf, B. S., Jeffery, A. N., Voss, L. D., & Wilkin, T. J. (2012). The contribution of parental BMI to the metabolic health of their offspring: a longitudinal cohort study (EarlyBird 55). *Pediatric Obesity, 7*(2), 143-150. doi: 10.1111/j.2047-6310.2011.00013.x

Alexander, S. C., Østbye, T., Pollak, K. I., Gradison, M., Bastian, L. A., & Namenek Brouwer, R. J. (2007). Physicians' Beliefs About Discussing Obesity: Results from Focus Groups. *American Journal of Health Promotion, 21*(6), 498-500.

Allender, S., Osborne, R., Bowen, S., Shiell, A., Hawe, P., & Swinburn, B. (2011). Measuring the 'system' in whole of system approaches to obesity prevention. *Obesity Research & Clinical Practice, 5*(1), 51-51.

Alvaro, C., Jackson, L. A., Kirk, S., McHugh, T. L., Hughes, J., Chircop, A., & Lyons, R. F. (2011). Moving Canadian governmental policies beyond a focus on individual lifestyle: some insights from complexity and critical theories. *Health Promotion International, 26*(1), 91-99.

American College of Surgeons. (2004). Recommendations for facilities performing bariatric surgery (ST-34). from http://www.facs.org/fellows_info/statements/st-34.html

American Dietetic Association. (2006). Position of the American Dietetic Association: individual-, family-, school-, and community-based interventions for pediatric overweight. *Journal Of The American Dietetic Association, 106*(6), 925-945.

American Dietetic Association. (2009). Position of the American Dietetic Association: Weight management. *Journal Of The American Dietetic Association, 109*(2), 330-346. doi: 10.1016/j.jada.2008.11.041

American Dietetic Association. (2012). Adult weight management evidence-based nutrition practice guideline. Retrieved from http://www.adaevidencelibrary.com/topic.cfm?cat=2798 website:

American Psychological Association. (2009). *Publication manual of the American Psychological Association* (6th ed.). Washington, DC: American Psychological Association

An, J., Hayman, L. L., Park, Y., Dusaj, T. K., & Ayres, C. G. (2009). Web-based weight management programs for children and adolescents: a systematic review of randomized controlled trial studies. *Advances in Nursing Science, 32*(3), 222-240. doi: 10.1097/ANS.0b013e3181b0d6ef

Anderson, L. M., Quinn, T. A., Glanz, K., Ramirez, G., Kahwati, L. C., Johnson, D. B., . . . Katz, D. L. (2009). The Effectiveness of Worksite Nutrition and

Physical Activity Interventions for Controlling Employee Overweight and Obesity: A Systematic Review. *American Journal of Preventive Medicine, 37*(4), 340-357. http://www.sciencedirect.com/science/article/B6VHT-4X7R19J-F/2/35b72069421a81bcc9e13c6c2e031b12

Anderson, R. M., & Funnell, M. M. (2010). Patient empowerment: Myths and misconceptions. *Patient Education and Counseling, 79*(3), 277-282. doi: 10.1016/j.pec.2009.07.025

Aphramor, L., & Gingras, J. (2009). That remains to be said: Disappeared feminist discourses on fat in dietetic theory and practice. In E. Rothblum & S. Solovay (Eds.), *The fat studies reader*. (pp. 97-105). New York, NY US: New York University Press.

Apovian, C. M., Cummings, S., Anderson, W., Borud, L., Boyer, K., Day, K., . . . Thomason, P. (2009). Best Practice Updates for Multidisciplinary Care in Weight Loss Surgery. *Obesity (19307381), 17*(5), 871-879.

Argyris, C. (1980). *Inner contradictions of rigorous research*. New York: Academic Press.

Argyris, C. (1982). *Reasoning, learning and action: Individual and organisational* San Francisco: Jossey-Bass.

Argyris, C. (1990). *Overcoming organizational defenses: Facilitating organizational learning* Needham Heights, MA: Allyn and Bacon

Argyris, C., Putnam, R., & McLain Smith, D. (1985). *Action science*. San Francisco: Jossey-Bass.

Argyris, C., & Schőn, D. A. (1974). *Theory in practice: increasing professinal effectiveness*. San Francisco: Jossey-Bass Publications.

Argyris, C., & Schőn, D. A. (1978). *Organizational learning: A theory of action perspective* Reading, MA: Addison-Wesley Publishing Company.

Argyris, C., & Schőn, D. A. (1989). Participatory Action Research and Action Science Compared. *American Behavioral Scientist, 32*(5), 612.

Atlantis, E., & Ball, K. (2008). Association between weight perception and psychological distress. *International Journal of Obesity, 32*(4), 715-721. doi: 10.1038/sj.ijo.0803762

Atlantis, E., Barnes, E. H., & Ball, K. (2008). Weight status and perception barriers to healthy physical activity and diet behavior. *International Journal of Obesity, 32*(2), 343-352. doi: 10.1038/sj.ijo.0803707

Atlantis, E., Lange, K., & Wittert, G. A. (2009). Chronic disease trends due to excess body weight in Australia. *Obesity Reviews, 10*(5), 543-553.

Austin, W., Park, C., & Goble, E. (2008). From interdisciplinary to transdisciplinary research: A case study. *Qualitative Health Research, 18*(4), 557-564. doi: 10.1177/1049732307308514

Australian Bureau of Statistics. (2008). *National Health Survey*. (Cat 4364.0). Retrieved from http://www.abs.gov.au/ausstats/abs@.nsf/mf/4364.0/.

Australian Bureau of Statistics. (2013). Overweight/Obesity. Retrieved 01.06.13, from http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/4125.0main+features3330Jan%202013

Australian Commission of Safety and Quality in Health Care. (2010). Patient-centred care: Improving quality and safety by focusing care on patients and consumers Sydney.

Australian Institute of Health and Welfare. (2004). *A rising epidemic: Obesity in Australian children and adolescents.* . Canberra: AIHW Retrieved from www.aihw.gov.au.

Australian Medical Association. (2010). Medical Professionalism - 2010 *Position Statement*. Canberra: Australian Medical Association

Australian Medical Association. (2011). Role of the doctor 2011 *Position Papers*. Canberra: Australian Medical Association

Australian Physiotherapy Association. (2013). What is physiotherapy? , from http://www.physiotherapy.asn.au/APAWCM/Physio_and_You/physio/APAWCM/Physio_and_You/physio.aspx?hkey=25ad06f0-e004-47e5-b894-e0ede69e0fff

Australian Psychological Society. (2010). Evidence-based psychological interventions in the treatment of mental disorders: A literature review. 3rd Retrieved 07.12.10, 2010, from http://www.psychology.org.au/practitioner/resources/interventions

Avenell, A., Brown, T. J., McGee, M. A., Campbell, M. K., Grant, A. M., Broom, J., . . . Smith, W. C. S. (2004a). What are the long-term benefits of weight reducing diets in adults? A systematic review of randomized controlled trials. *Journal of Human Nutrition & Dietetics, 17*(4), 317-335.

Avenell, A., Brown, T. J., McGee, M. A., Campbell, M. K., Grant, A. M., Broom, J., . . . Smith, W. C. S. (2004b). What interventions should we add to weight reducing diets in adults with obesity? A systematic review of randomized controlled trials of adding drug therapy, exercise, behaviour therapy or combinations of these interventions. *Journal of Human Nutrition & Dietetics, 17*(4), 293-316.

Aylott, J., Brown, I., Copeland, R., & Johnson, D. (2008). Tackling obesities: the foresight report and implications for local government. Sheffield: Sheffield Hallam University

Bammer, G. (2005). Integration and Implementation Sciences: Building a New Specialization. *Ecology & Society, 10*(2), 78-103.

Bar-Yam, Y. (2004). *Making things work: solving complex problems in a complex world*. NECSI: Knowledge Press.

Barlow, S. E. (2007). Expert committee recommendations regarding the prevention, assessment, and treatment of child and adolescent overweight and obesity: Summary report. *Pediatrics, 120*, S164-S192.

Barquera Cervera, S., Campos-Nonato, I., Rojas, R., & Rivera, J. (2010). [Obesity in Mexico: epidemiology and health policies for its control and prevention]. *Gaceta Médica De México, 146*(6), 397-407.

Barr, S. I., Yarker, K. V., R, L.-M., & Chapman, G. E. (2004). Canadian dietitians' views and practices regarding obesity and weight management. *Journal of Human Nutrition & Dietetics, 17*(6), 503-512.

Barton, J., Emery, M., Flood, R. L., Selsky, J. W., & Wolstenholme, E. (2004). A Maturing of Systems Thinking? Evidence from Three Perspectives. *Systemic Practice and Action Research, 17*(1), 3-36.

Bassett, J. K., G., S., Baglietto, L., MacInnis, R. J., Hoang, H. N., Hopper, J. L., . . . Giles, G. G. (2011). Weight change and prostate cancer incidence and mortality. *International Journal of Cancer*. doi: 10.1002/ijc.27414

Bazeley, P. (2007). *Qualitative data analysis with nvivo*. London: Sage Publications Ltd.

Beer, M. (2001). Why Management Research Findings Are Unimplementable: An Action Science Perspective. *Reflections, 2*(3), 58-65. doi: 10.1162/152417301570383

Behan, D. F., & Cox, S. H. (2010). Obesity and its relation to mortality and morbidity costs (pp. 1): Society of Actuaries.

Beyer, H., & Holtzblatt, K. (1998). *Contextual design: Defining customer-centered systems*. San Francisco: Morgan Kaufmann Publishers.

Bleich, S., Cutler, D., Murray, C., & Adams, A. (2008). Why is the developed world obese? *Annual Review Of Public Health, 29*, 273-295.

Blundell, J. E., & Finlayson, G. (2011). Food addiction not helpful: the hedonic component - implicit wanting - is important *Addiction, 106*(7), 1216-1218. doi: 10.1111/j.1360-0443.2011.03413.x

Bogle, V., & Sykes, C. (2011). Psychological interventions in the treatment of childhood obesity: What we know and need to find out. *Journal of Health Psychology, 16*(7), 997-1014. doi: 10.1177/1359105310397626

Bovet, P., Gervasoni, J.-P., Mkamba, M., Balampama, M., Lengeler, C., & Paccaud, F. (2008). Go4it; study design of a randomised controlled trial and economic evaluation of a multidisciplinary group intervention for obese adolescents for prevention of diabetes mellitus type 2. *BMC Public Health, 8*, 410-415.

Boyer, E. L. (1996). The Scholarship of Engagement. *Journal of Public Service & Outreach, 1*(1), 11-20.

Brewis, A. A. (2012). Obesity and human biology: Toward a global perspective. *American Journal of Human Biology: The Official Journal of the Human Biology Council, 24*(3), 258-260.

Briscoe, J. S., & Berry, J. A. (2009). Barriers to weight loss counseling. *Journal for Nurse Practitioners, 5*(3), 161-168.

Broom, D. H., & Strazdins, L. (2007). The harried environment. In J. Dixon & D. H. Broom (Eds.), *The seven deadly sins of obesity: How the modern world is making us fat*. Sydney: UNSW Press.

Brownell, K. D., Kersh, R., Ludwig, D. S., Post, R. C., Puhl, R. M., Schwartz, M. B., & Willett, W. C. (2010). Personal responsibility and obesity: a constructive approach to a controversial issue. *Health Affairs, 29*(3), 379-387. doi: 10.1377/hlthaff.2009.0739

Brownlie, D., Hewer, P., Wagner, B., & Svensson, G. (2008). Management theory and practice: bridging the gap through multidisciplinary lenses. *European Business Review, 20*(6), 461-470.

Brownson, R. C., Haire-Joshu, D., & Luke, D. A. (2006). Shaping the context of health: a review of environmental and policy approaches in the prevention of chronic diseases. *Annual Review Of Public Health, 27*, 341-370.

Bryant, E. J., King, N. A., & Blundell, J. E. (2008). Disinhibition: its effects on appetite and weight regulation. *Obesity Reviews, 9*(5), 409-419. doi: 10.1111/j.1467-789X.2007.00426.x

Brydon-Miller, M., Greenwood, D., & Maguire, P. (2003). Why action research? . *Action Research, 1*(1), 9-28. doi: 10.1177/14767503030011002

Buclin-Thiébaud, S., Pataky, Z., Bruchez, V., & Golay, A. (2010). New psycho-pedagogic approach to obesity treatment: a 5-year follow-up. *Patient Education & Counseling, 79*(3), 333-337.

Bulik, C. M. (2013). *Midlife eating disorders: Your journey to recovery* New York: Walker and Company.

Butland, B., Jebb, S., Kopelman, P., Thomas, S., Mardell, J., & Parry, V. (2007). *Tackling obesities: Future choices - Foresight project report*. London: Government Office for Science Retrieved from http://www.bis.gov.uk/assets/foresight/docs/obesity/17.pdf.

Butterworth, P. A., Landorf, K. B., Smith, S. E., & Menz, H. B. (2012). The association between body mass index and musculoskeletal foot disorders: a systematic review. *Obesity Reviews: An Official Journal Of The International Association For The Study Of Obesity, 13*(7), 630-642. doi: 10.1111/j.1467-789X.2012.00996.x

Byrne, S., Cooper, Z., & Fairburn, C. (2003). Weight maintenance and relapse in obesity: a qualitative study. *International Journal of Obesity, 27*, 955-962. doi: 10.1038/sj.ijo.802305

Carnier, J., de Piano, A., Tock, L., do Nascimento, C. M. O., Oyama, L. M., Corrêa, F. A., . . . Dâmaso, A. R. (2010). The role of orexigenic and anorexigenic factors in an interdisciplinary weight loss therapy for obese adolescents with symptoms of eating disorders. *International Journal of Clinical Practice, 64*(6), 784-790. doi: 10.1111/j.1742-1241.2009.02306.x

Chan, B. C., Perkins, D., Wan, Q., Zwar, N., Daniel, C., Crookes, P., & Harris, M. F. (2010). Finding common ground? Evaluating an intervention to improve teamwork among primary health-care professionals. *International Journal For Quality In Health Care: Journal Of The International Society For Quality In Health Care / Isqua, 22*(6), 519-524.

Charman, D. (2005). Psychological treatments: Evidence-based practice and practice-based evidence. Retrieved 07.12.10, from http://www.psychology.org.au/publications/inpsych/treatments/

COAG Reform Council. (2013). Healthcare 2011-2012: Comparing performance across Australia. In C. R. Council (Ed.), *Report to the Council of Australian Governments* Canberra.

Cochrane, A., Kavanagh, D., Dick, B., Hills, A., & King, N. (2012). Out with the old and in with the new: A novel multi-component multi-disciplinary approach to improving obesity management. *Obesity Research & Clinical Practice, 6*(4), 90-91.

Cohen, D. A. (2008). Neurophysiological pathways to obesity: below awareness and beyond individual control. *Diabetes, 57*(7), 1768-1773.

Cohen, L., Manion, L., & Morrison, K. (2007). *Research methods in education (6th ed.)*. New York, NY US: Routledge/Taylor & Francis Group.

Colagiuri, S., Lee, C. M. Y., Colagiuri, R., Magliano, D., Shaw, J. E., Zimmet, P. Z., & Caterson, I. D. (2010). The cost of overweight and obesity in Australia. *The Medical Journal Of Australia, 192*(5), 260-264.

Collins, C. E., Warren, J., Neve, M., McCoy, P., & Stokes, B. J. (2006). Measuring effectiveness of dietetic interventions in child obesity: a systematic review of randomized trials. *Archives of Pediatrics & Adolescent Medicine, 160*(9), 906-922.

Colorado State University. (2013). Generalizability and tranferability from http://writing.colostate.edu/guides/guide.cfm?guideid=65

Colquitt, J. L., Picot, J., Loveman, E., & Clegg, A. J. (2009). Surgery for obesity. *Cochrane Database of Systematic Reviews*(2). doi: 10.1002/14651858.CD003641.pub3

Conrad, D., & Campbell, G. (2008). Participatory research: An empowering methodology with marginalised populations. . In P. Liamputtong & J. Rumbold

(Eds.), *Knowing differently: Arts-based and collaborative research methods* (pp. 247-263). New York: Nova Science Publishers.

Cooper, Z., Fairburn, C. G., & Hawker, D. M. (2004). *Treatment of obesity: A clinician's guide*. New York: The Guilford Press.

Coppins, D. F., Margetts, B. M., Fa, J. L., Brown, M., Garrett, F., & Huelin, S. (2011). Effectiveness of a multi-disciplinary family-based programme for treating childhood obesity (The Family Project). *European Journal Of Clinical Nutrition, 65*(8), 903-909.

Cordain, L., Eaton, S. B., Sebastian, A., Mann, N., Lindeberg, S., Watkins, B. A., . . . Brand-Miller, J. (2005). Origins and evolution of the Western diet: health implications for the 21st century. *American Journal of Clinical Nutrition, 81*(2), 341-354.

Crabtree, B. F., Miller, W. L., & Stange, K. C. (2001). Understanding Practice from the Ground Up. *Journal of Family Practice, 50*(10), 881-887.

Creswell, J. W. (2005). *Educational research: Planning, conducting and evaluating quantitative and qualitative research*. Upper Saddle River, N. J. : Pearson/Merrill Prentic Hall.

Curioni, C. C., & Lourenço, P. M. (2005). Long-term weight loss after diet and exercise: a systematic review. *International Journal of Obesity (formerly International Journal of Obesity and Related Metabolic Disorders), 29*(10), 1168-1174.

Curran, A. E., Caplan, D. J., Lee, J. Y., Paynter, L., Gizlice, Z., Champagne, C., . . . Agans, R. (2010). Dentists' attitudes about their role in addressing obesity in patients: a national survey. *Journal Of The American Dental Association (1939), 141*(11), 1307-1316.

Cutler, D. M., Glaeser, E. L., & Shapiro, J. M. (2003). Why Have Americans Become More Obese? *Journal of Economic Perspectives, 17*(3), 93-118.

DAA. (2008). The role of credentialled diabetes educators and accredited practising dietitians in the delivery of diabetes self management and nutrition services for people with diabetes. Retrieved 11.05.13, 2013, from http://daa.asn.au/wp-content/uploads/2012/05/CDEAPD_FINAL.pdf

DAA, & AAESS. (2008). The collaboration of exercise physiologists and dietitians in chronic disease management. Retrieved 11.05.13, 2013, from http://daa.collaborative.net.au/files/Info%20for%20Professionals/Publications_and_Resources/PUB_AAESS_A4_Brochures_FINAL_for_website.pdf?

Davison, K. K., Jurkowski, J. M., Li, K., Kranz, S., & Lawson, H. A. (2013). A childhood obesity intervention developed by families for families: results from a pilot study. *International Journal of Behavioral Nutrition & Physical Activity, 10*(1), 1-11. doi: 10.1186/1479-5868-10-3

Dawson-Hughes, B., Harris, S. S., & Ceglia, L. (2008). Alkaline diets favor lean tissue mass in older adults. *American Journal of Clinical Nutrition, 87*(3), 662-665.

de Koning, K., & Martin, M. (Eds.). (1996). *Participatory research in health: Issues and experiences*. London: Zed Books.

de la Rie, S., Noordenbos, G., Donker, M., & Furth, E. v. (2006). Evaluating the treatment of eating disorders from the patient's perspective. *International Journal of Eating Disorders, 39*(8), 667-676.

Delahanty, L. M. (2010). An expanded role for dietitians in maximising retention in nutrition and lifestyle intervention trials: implications for clinical practice. *Journal of Human Nutrition & Dietetics, 23*(4), 336-343. doi: 10.1111/j.1365-277X.2009.01037.x

Delbridge, E. A., Prendergast, L. A., Pritchard, J. E., & Proietto, J. (2009). One-year weight maintenance after significant weight loss in healthy overweight and obese subjects: does diet composition matter? *American Journal of Clinical Nutrition, 90*(5), 1203-1214. doi: 10.3945/ajcn.2008.27209

DeMattia, L., Lemont, L., & Meurer, L. (2007). Do interventions to limit sedentary behaviours change behaviour and reduce childhood obesity? A critical review of the literature. *Obesity Reviews, 8*(1), 69-81. doi: 10.1111/j.1467-789X.2006.00259.x

Denis, J.-L., & Lomas, J. (2003). Convergent evolution: the academic and policy roots of collaborative research. *Journal of Health Services Research & Policy, 8*, 1-6. doi: 10.1258/135581903322405108

Dennis, P. K. (2006). *Fat in the countertransference: Clinical social workers' reactions to fat patients.* (66), ProQuest Information & Learning, US. Retrieved from http://gateway.library.qut.edu.au/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=psyh&AN=2006-99001-026&site=ehost-live Available from EBSCOhost psyh database.

Department of Health. (2007). Chronic conditions self-management. Retrieved 15.06.13, 2013, from http://www.selfmanagement.health.wa.gov.au/

Department of Health. (2011). *WA chronic conditions self-management strategic framework 2011-2015*

Government of Western Australia Retrieved from http://www.healthnetworks.health.wa.gov.au/docs/1112_CCSM_Strategic_Framework.pdf.

Department of Health and Ageing. (2010). Medicare benefits schedule: Allied health services (Vol. Publications Approval Number: 6061). Canberra: Australian Government Department of Health and Ageing.

Department of Health and Aging. (2013). MBS primary care items: Chronic disease management Medicare items. Retrieved 01.06.13, 2013, from http://www.health.gov.au/internet/main/publishing.nsf/Content/mbsprimarycare-chronicdiseasemanagement

Derbas, J., Vetter, M., Volger, S., Khan, Z., Panigrahi, E., Tsai, A. G., . . . Wadden, T. A. (2009). Improving Weight Management in Primary Care Practice: A Possible Role for Auxiliary Health Professionals Collaborating with Primary Care Physicians. *Obesity and Weight Management, 5*(5), 210-215.

Desvergne, B., Feige, J. N., & Casals-Casas, C. (2009). PPAR-mediated activity of phthalates: A link to the obesity epidemic? *Molecular and Cellular Endocrinology, 304*(1-2), 43-48.

Dibonaventura, M. D., & Chapman, G. B. (2008). The effect of barrier underestimation on weight management and exercise change. *Psychology, Health & Medicine, 13*(1), 111-122. doi: 10.1080/13548500701426711

Dick, B. (1990). *Convergent interviewing (3rd version)*. Chapel Hill: Interchange.

Dick, B. (1991). *Helping groups to be effective: Skills, processes and concepts for group facilitation* (2nd ed.). Chapel Hill: Interchange.

Dick, B. (1993). You want to do an action research thesis? http://www.aral.com.au/resources/arthesis.html#a_art_introchap

Dick, B. (1998). Convergent interviewing: A technique for qualitative data collection. http://www.aral.com.au/resources/iview.html

Dick, B. (2000). A beginner's guide to action research. *Action Research and Evaluation On Line*. http://www.scu.edu.au/schools/gcm/ar/arp/guide.html

Dick, B. (2000). Cycles within cycles. *AREOL*. http://www.uq.net.au/action_research/arp/cycles.html
Dick, B. (2001). *Community and organisational change*. Interchange Brisbane.
Dick, B. (2002). Postgraduate programs using action research. *The Learning Organisation, 9*(4), 159-170. doi: 10.1108/09696470210428886
Dick, B. (2003). *What can action researchers learn from grounded theorists?* Paper presented at the Australian and New Zealand ALARPM/SCIAR conference, Gold Coast.
Dick, B. (2013). Convergent interviewing [On Line}. http://www.aral.com.au/resources/coin.pdf
Dick, B., & Dalmeau, T. (1990). *Values in action: Applying the ideas of Argyris and Schőn*. Chapel Hill, Australia: Interchange.
Dick, B., & Swepson, P. (1994). Appropriate validity and its attainment within action research: An illustration using soft systems methodology.
Dietitians Association of Australia. (2005). Best practice guidelines for the treatment of overweight and obesity in adults. Canberra.
Dietitians Association of Australia. (2008a). *DAA endorsed practice guidelines and practice recommendations: Best practice guidelines for the treatment of overweight and obesity in adults* Retrieved from http://daa.collaborative.net.au/files/DINER/Obesity%20Guidelines%20(Final).pdf?
Dietitians Association of Australia. (2008b). Dietitians 10 point plan for the treatment of overweight and obesity Retrieved 4.12.12, 2012, from http://daa.collaborative.net.au/files/DINER/10%20Point%20Plan%20(final).pdf?
Dietitians Association of Australia. (2012a). DAA Best practice guidelines for the treatment of overweight and obesity in adults. Canberra: Dietitians Association of Australia.
Dietitians Association of Australia. (2012b). DAA Best practice guidelines for the treatment of overweight and obesity in adults. Canberra: Dietitians Association of Australia.
Dietitians Association of Australia. (2013). What is an accredited practising dietitian? , 2013, from http://daa.asn.au/for-the-public/find-an-apd/what-is-an-accredited-practising-dietitian/
Dixon, J., & Broom, D. H. (2007). Multiple sins, multiple saviours In J. Dixon & D. H. Broom (Eds.), *The 7 deadly sins of obesity: how the modern world is making us fat*. Sydney: University of New South Wales.
Dolor, R. J., Østbye, T., Lyna, P., Coffman, C. J., Alexander, S. C., Tulsky, J. A., . . . Pollak, K. I. (2010). What are physicians' and patients' beliefs about diet, weight, exercise, and smoking cessation counseling? *Preventive Medicine: An International Journal Devoted to Practice and Theory, 51*(5), 440-442. doi: 10.1016/j.ypmed.2010.07.023
Donini, L. M., Savina, C., Castellaneta, E., Coletti, C., Paolini, M., Scavone, L., . . . Cannella, C. (2009). Multidisciplinary approach to obesity. *Eating And Weight Disorders: EWD, 14*(1), 23-32.
Driedger, S. M., Gallois, C., Sanders, C. B., & Santesso, N. (2006). Finding common ground in team-based qualitative research using the convergent interviewing method. *Qualitative Health Research, 16*(8), 1145-1157. doi: 10.1177/1049732306289705

Duffey, K. J., & Popkin, B. M. (2011). Energy density, portion size, and eating occasions: Contributions to increased energy intake in the United States, 1977-2006. *Plos Medicine, 8*(6), e10001050. doi: 10.1371/journal.pmed.1001050

Duncan, B. L. (2012). The Partners for Change Outcome Management System (PCOMS): The Heart and Soul of Change Project. *Canadian Psychology/Psychologie canadienne, 53*(2), 93-104. doi: 10.1037/a0027762

Duncan, B. L., Miller, S. D., & Sparks, J. A. (2004). *The heroic client*. San Francisco: John Wiley and Sons.

Duncan, B. L., Miller, S. D., Wampold, B. E., & Hubble, M. A. (Eds.). (2009). *The heart and soul of change: What works in therapy* (2nd ed.). Washington American Psychological Association

Egger, G., Binns, A., & Rossner, S. (2008). *Lifestyle medicine*. Sydney: McGraw-Hill.

Egger, G., Pearson, S., Pal, S., & Swinburn, B. (2007). Dissecting obesogenic behaviours: the development and application of a test battery for targeting prescription for weight loss. *Obesity Reviews, 8*(6), 481-486.

Eliadis, E. E. (2006). The role of social work in the childhood obesity epidemic. *Social Work, 51*(1), 86-88.

Ely, A. C., Banitt, A., Befort, C., Hou, Q., Rhode, P. C., Grund, C., . . . Ellerbeck, E. (2008). Kansas Primary Care Weighs In: A Pilot Randomized Trial of a Chronic Care Model Program for Obesity in 3 Rural Kansas Primary Care Practices. *Journal of Rural Health, 24*(2), 125-132.

Enwald, H. P. K., & Huotari, M.-L. A. (2010). Preventing the Obesity Epidemic by Second Generation Tailored Health Communication: An Interdisciplinary Review. *Journal of Medical Internet Research, 12*(2), 16-16. doi: 10.2196/jmir.1409

Epstein, S., Geniteau, E., Christin, P., Hermouet, P., Mok, E., Fournier, J., & Hankard, R. (2010). Role of a clinical nurse specialist within a paediatric multidisciplinary weight-management programme team. *Journal of Clinical Nursing, 19*(17/18), 2649-2651. doi: 10.1111/j.1365-2702.2010.03296.x

ESSA. (2013). Exercise scientists. Retrieved 12.05.13, from http://www.essa.org.au/about-us/profession/

EurActiv.com. (2010). Food industry wins battle on 'traffic light' labels. Retrieved 22.11.12, 2012, from http://www.euractiv.com/food-industry-wins-battle-traffic-light-labels-news-495324

Fairburn, C. G., & Cooper, Z. (2011). Therapist competence, therapy quality, and therapist training. *Behaviour Research and Therapy, 49*(6-7), 373-378. doi: 10.1016/j.brat.2011.03.005

Fairfax Media, & Lateral Economics. (2011). The Herald/Age - lateral economics index of Australia's wellbeing: Final report.

Falkenström, F., Granström, F., & Holmqvist, R. (2013). Therapeutic Alliance Predicts Symptomatic Improvement Session by Session. *Journal of Counseling Psychology*. doi: 10.1037/a0032258

Farlex. (2012). The Free Dictionary. Retrieved 07.12.12, from http://www.thefreedictionary.com/

Filbert, E., Chesser, A., Hawley, S. R., & St. Romain, T. (2009). Community-based participatory research in developing an obesity intervention in a rural county. *Journal of Community Health Nursing, 26*(1), 35-43. doi: 10.1080/07370010802605804

Finegood, D. T. (2012). The importance of systems thinking to address obesity. *Nestlé Nutrition Institute Workshop Series, 73*, 123-137. doi: 10.1159/000341308

Finegood, D. T., Karanfil, O., & Matteson, C. L. (2008). Getting from analysis to action: framing obesity research, policy and practice with a solution-oriented complex systems lens. *Healthcare Papers, 9*(1), 36-41.

Finegood, D. T., Merth, T. D. N., & Rutter, H. (2010). Implications of the Foresight Obesity System Map for Solutions to Childhood Obesity. *Obesity (19307381), 18*, S13-S16.

Finkelstein, E. A., Ruhm, C. J., & Kosa, K. M. (2005). Economic causes and consequences of obesity. *Annual Review Of Public Health, 26*(1), 239-257. doi: 10.1146/annurev.publhealth.26.021304.144628

Finucane, M. M., Stevens, G. A., Cowan, M. J., Danaei, G., Lin, J. K., Paciorek, C. J., . . . Ezzati, M. (2011). National, regional, and global trends in body-mass index since 1980: systematic analysis of health examination surveys and epidemiological studies with 960 country-years and 9·1 million participants. *Lancet, 377*(9765), 557-567. doi: 10.1016/s0140-6736(10)62037-5

First, M. B., Frances, A., & Pincus, H. A. (2005). *DSM-IV-TR handbook of differential diagnosis*

Flegal, K. M., Carroll, M. D., Ogden, C. L., & Curtin, L. R. (2010). Prevalence and trends in obesity among US adults, 1999-2008. *JAMA: Journal of the American Medical Association, 303*(3), 235-241. doi: 10.1001/jama.2009.2014

Flegal, K. M., Carroll, M. D., Ogden, C. L., & Johnson, C. L. (2002). Prevalence and trends in obesity among US adults, 1999-2000. *Jama, 288*(14), 1723.

Flodgren, G., Deane, K., Dickinson, H. O., Kirk, S., Alberti, H., Beyer, F. R., . . . Eccles, M. P. (2010). Interventions to change the behaviour of health professionals and the organisation of care to promote weight reduction in overweight and obese adults. *Cochrane Database of Systematic Reviews*(3). doi: 10.1002/14651858.cd000984

Flood, R. L. (2010). The Relationship of 'Systems Thinking' to Action Research. *Systemic Practice & Action Research, 23*(4), 269-284. doi: 10.1007/s11213-010-9169-1

Foote Whyte, W. (1991). Comparing PAR and action science. In W. Foote Whyte (Ed.), *Participatory action research*. London: Sage.

Ford, E. S., & Mokdad, A. H. (2008). Epidemiology of obesity in the Western Hemisphere. *The Journal Of Clinical Endocrinology And Metabolism, 93*(11 Suppl 1), S1-S8.

Forman-Hoffman, V., Little, A., & Wahls, T. (2006). Barriers to obesity management: a pilot study of primary care clinicians. *BMC Family Practice, 7*, 35-35.

Forman, E. M., Butryn, M. L., Hoffman, K. L., & Herbert, J. D. (2009). An open trial of an acceptance-based behavioral intervention for weight loss. *Cognitive and Behavioral Practice, 16*(2), 223-235.

Foster, G. D., Wadden, T. A., Makris, A. P., Davidson, D., Sanderson, R. S., Allison, D. B., & Kessler, A. (2003). Primary Care Physicians' Attitudes about Obesity and Its Treatment. *Obesity, 11*(10), 1168-1177.

Fox, N. J. (2003). Practice-based Evidence: Towards Collaborative and Transgressive Research. *Sociology, 37*(1), 81-102.

Frerichs, L., Perin, D., & Huang, T. (2012). Current trends in childhood obesity research. *Current Nutrition Reports, 1*(4), 228-238.

Freshwater, D. (2005). Action research for changing and improving practice. In I. Holloway (Ed.), *Qualitative research in health care* (pp. 210-228). Berkshire, England Open University Press.

Frood, S., Matteson, C., Kirk, S., Penney, T., & Finegood, D. T. (2013). A complex systems approach to perceptions of obesity in service users, health sare practitioners and policy makers. *Canadian Journal of Diabetes, 37*(1), S247-S247.

Galani, C., & Schneider, H. (2007). Prevention and treatment of obesity with lifestyle interventions: review and meta-analysis. *International Journal of Public Health, 52*(6), 348-359.

Gallop, R., Kennedy, S. H., & Stern, D. (1994). Therapeutic Alliance on an Inpatient Unit for Eating Disorders. *International Journal of Eating Disorders, 16*(4), 405-410.

Garaulet, M., Canteras, M., Morales, E., López-Guimera, G., Sánchez-Carracedo, D., & Corbalán-Tutau, M. D. (2012). Validation of a questionnaire on emotional eating for use in cases of obesity: the Emotional Eater Questionnaire (EEQ). *Nutrición Hospitalaria: Organo Oficial De La Sociedad Española De Nutrición Parenteral Y Enteral, 27*(2), 645-651.

Germann, J. N. (2009). Comprehensive Multidisciplinary Program Perspective. *Obesity Management, 5*(1), 14-16.

Gibbs, G. R. (2007). *Analyzing qualitative data* doi:10.4135/9781849208574

Goh, Y., Bogart, L. M., Sipple-Asher, B. K., Uyeda, K., Hawes-Dawson, J., Olarita-Dhungana, J., . . . Schuster, M. A. (2009). Using community-based participatory research to identify potential interventions to overcome barriers to adolescents' healthy eating and physical activity. *Journal of Behavioral Medicine, 32*(5), 491-502. doi: 10.1007/s10865-009-9220-9

Goodwin, K. (2009). *Designing for the digital age: How to create human-cantred products and services*. Indiapolis, Indiana: Wiley Publishing.

Gortmaker, S. L., Swinburn, B. A., Levy, D., Carter, R., Mabry, P. L., Finegood, D. T., . . . Moodie, M. L. (2011). Changing the future of obesity: science, policy, and action. *Lancet, 378*(9793), 838-847.

Grace, C. (2011). A review of one-to-one dietetic obesity management in adults. *Journal of Human Nutrition & Dietetics, 24*(1), 13-22.

Gray, D. E. (2009). *Doing research in the real world* (2nd ed.). London: Sage.

Greenberg, I., Perna, F., Kaplan, M., & Sullivan, M. A. (2005). Behavioral and Psychological Factors in the Assessment and Treatment of Obesity Surgery Patients. *Obesity, 13*(2), 244-249.

Greenberg, I., Stampfer, M. J., Schwarzfuchs, D., & Shai, I. (2009). Adherence and Success in Long-Term Weight Loss Diets: The Dietary Intervention Randomized Controlled Trial (DIRECT). *Journal of the American College of Nutrition, 28*(2), 159-168.

Greener, J., Douglas, F., & van Teijlingen, E. (2010). More of the same? Conflicting perspectives of obesity causation and intervention amongst overweight people, health professionals and policy makers. *Social Science & Medicine, 70*(7), 1042-1049. doi: 10.1016/j.socscimed.2009.11.017

Grossniklaus, D. A., Dunbar, S. B., Tohill, B. C., Gary, R., Higgins, M. K., & Frediani, J. (2010). Psychological factors are important correlates of dietary pattern in overweight adults. *Journal of Cardiovascular Nursing, 25*(6), 450-460. doi: 10.1097/JCN.0b013e3181d25433

Guh, D. P., Wei, Z., Bansback, N., Amarsi, Z., Birmingham, C. L., & Anis, A. H. (2009). The incidence of co-morbidities related to obesity and overweight: A systematic review and meta-analysis. *BMC Public Health, 9*, 1-20. doi: 10.1186/1471-2458-9-88

Gummesson, E. (2000). *Qualitative methods in management research*. Thousand Oaks, California: Sage Publications.

Ham, C., Dixon, A., & Brooke, B. (2012). Transforming the delivery of health and social care: the case for fundamental change. London: The King's Fund.

Hamid, T. K. A. (2009). *Thinking in circles about obesity: Applying systems thinking to weight management* Retrieved from http://www.springerlink.com.ezp01.library.qut.edu.au/content/r6j321/#section=280187&page=3&locus=62

Hansson, L. M., Rasmussen, F., & Ahlstrom, G. I. (2011). General practitioners' and district nurses' conceptions of the encounter with obese patients in primary health care. *BMC Family Practice, 12*(1), 7-16. doi: 10.1186/1471-2148-11-7

Harris, J. L., Pomeranz, J. L., Lobstein, T., & Brownell, K. D. (2009). A Crisis in the Marketplace: How Food Marketing Contributes to Childhood Obesity and What Can Be Done. *Annual Review Of Public Health, 30*(1), 211-225. doi: 10.1146/annurev.publhealth.031308.100304

Hatch, E. E., Nelson, J. W., Stahlhut, R. W., & Webster, T. F. (2010). Association of endocrine disruptors and obesity: perspectives from epidemiological studies. *International Journal of Andrology, 33*(2), 324-332. doi: 10.1111/j.1365-2605.2009.01035.x

Hay, P. J., Mond, J., Buttner, P., & Darby, A. (2008). Eating disorder behaviors are increasing: findings from two sequential community surveys in South Australia. *PloS one, 3*(2), e1541. doi: 10.1371/journal.pone.0001541

Herr, K., & Anderson, G. (2005). *The action research dissertation* Thousand Oaks, CA: Sage Publications Ltd.

Higgins, R., Murphy, B., Worcester, M., & Daffey, A. (2012). Supporting chronic disease self-management: translating policies and principles into clinical practice. *Australian Journal of Primary Health, 18*(1), 80-87. doi: 10.1071/py11006

Hindle, T., Checkland, P., Mumford, M., & Worthington, D. (1995). Developing a methodology for multi-disciplinary action research: A case study. *Journal of the Operational Research Society, 46*, 453-464.

Holliday, A. (2007). *Doing and writing qualitative research (2nd ed.)*. Thousand Oaks: Sage Publications.

Holloway, I. (Ed.). (2005). *Qualitative research in health care*. Berkshire, England: Open University Press.

House of Commons, H. C. (2004). Obesity: Third report of session 2003-2004 (Vol. 1). *Retrieved from http://www.publications.parliament.uk/pa/cm200304/cmselect/cmhealth/23/23.pdf*.

Huang, M. T. T. K., Brownson, P. R., Esposito, L., Green, L., & Homer, C. (2013). Next steps in obesity prevention: Applying the systems approach. *Childhood Obesity, 9*(1), 11-14.

Huang, T. T., Drewnosksi, A., Kumanyika, S., & Glass, T. A. (2009). A systems-oriented multilevel framework for addressing obesity in the 21st century. *Preventing Chronic Disease, 6*(3), A82-A82.

Huang, T. T. K., Grimm, B., & Hammond, R. A. (2011). A systems-based typological framework for understanding the sustainability, scalability, and reach of childhood obesity interventions. *Children's Health Care, 40*(3), 253-266. doi: 10.1080/02739615.2011.590399

Hubble, M. A., duncan, B. L., Miller, S. D., & Wampold, B. E. (2010). Introduction In B. L. Duncan, S. D. Miller, B. E. Wampold & M. A. Hubble (Eds.), *The heart and soul of change: Delivering what works in therapy* (pp. 23-46). Washington, DC: American Psychological Association

Hughes, I. (2008). Action research in healthcare. In P. Reason & H. Bradbury (Eds.), *The Sage handbook of action research: Participative inquiry and practice* (pp. 381-393). London: Sage Publications.

Ichihara, S., & Yamada, Y. (2008). Genetic factors for human obesity. *Cellular And Molecular Life Sciences: CMLS, 65*(7-8), 1086-1098.

Inelmen, E., Toffanello, E., Enzi, G., Sergi, G., Coin, A., Busetto, L., & Manzato, E. (2008). Differences in dietary patterns between older and younger obese and overweight outpatients. *The Journal of Nutrition Health and Aging, 12*(1), 3-8.

Institute for Clinical Systems Improvement. (2011). Health Care Guideline: Prevention and management of obesity (mature adolescents and adults) (5th ed.).

Institute of Medicine. (2001). Crossing the quality chasm: A new health system for the 21st century. Washington: Institute of Medicine.

International Association for the Study of Obesity. (2010). Obesity: the global epidemic. *The global epidemic* Retrieved 18th July 2012, from http://www.iaso.org/iotf/obesity/obesitytheglobalepidemic/

International Diabetes Federation. (2011). Bariatric surgical and procedural interventions in the treatment of obese patients with Type 2 Diabetes: A position statement from the International Diabetes Federation Taskforce on Epidemiology and Prevention. *Retrieved from http://www.idf.org/webdata/docs/IDF-Position-Statement-Bariatric-Surgery.pdf*.

ISNA Bulletin. (2012). Evidence-Based Practice: Why Does It Matter? *ISNA Bulletin, 39*, 6-10.

Jackson-Leach, R., & Lobstein, T. (2006). Estimated burden of paediatric obesity and co-morbidities in Europe. Part 1. The increase in the prevalence of child obesity in Europe is itself increasing. *International Journal Of Pediatric Obesity: IJPO: An Official Journal Of The International Association For The Study Of Obesity, 1*(1), 26-32.

Jakicic, J. M., Tate, D. F., Lang, W., Davis, K. K., Polzien, K., Rickman, A. D., . . . Finkelstein, E. A. (2012). Effect of a stepped-care intervention approach on weight loss in adults: a randomized clinical trial. *JAMA: The Journal Of The American Medical Association, 307*(24), 2617-2626.

James, P., & Rigby, N. (2010). Developing the political climate for action. In E. Waters, B. Swinburn, J. Seidell & R. Uauy (Eds.), *Preventing childhood obesity: evidence, policy and practice* (pp. 212-219). Oxford: Blackwell.

Jeffery, R. W., Epstein, L. H., Wilson, G. T., Drewnowski, A., Stunkard, A. J., & Wing, R. R. (2000). Long-term maintenance of weight loss: Current status. *Health Psychology, 19*(1), 5-16. doi: 10.1037/0278-6133.19.Suppl1.5

Jepsen, D. M., & Rodwell, J. J. (2008). Convergent interviewing:A qualitative diagnostic technique for researchers. *Management Research, 31*(9), 650-658. doi: 10.1108/01409170810898548

Johnson, B. A., Kremer, P. J., Swinburn, B. A., & de Silva-Sanigorski, A. M. (2012). Multilevel analysis of the Be Active Eat Well intervention: environmental and behavioural influences on reductions in child obesity risk. *International*

Journal of Obesity (formerly International Journal of Obesity and Related Metabolic Disorders), 36(7), 901-907.

Jones, N., Furlanetto, D. L., Jackson, J. A., & Kinn, S. (2007). An investigation of obese adults' views of the outcomes of dietary treatment. *Journal of Human Nutrition & Dietetics, 20*(5), 486-494.

Karmali, S., Johnson Stoklossa, C., Sharma, A., Stadnyk, J., Christiansen, S., Cottreau, D., & Birch, D. W. (2010). Bariatric surgery: a primer. *Canadian Family Physician, 56*(9), 873-879.

Katz, D. L., O'Connell, M., Yeh, M., Nawaz, H., Njike, V., Anderson, L. M., . . . Dietz, W. (2005). Public health strategies for preventing and controlling overweight and obesity in school and worksite settings: a report on recommendations of the Task Force on Community Preventive Services. *MMWR: Morbidity & Mortality Weekly Report, 54*(RR-10), 1-11.

Kelle, U. (2004). Computer-assisted analysis of qualitative data. In U. Flick, E. von Kardoff & I. Steinke (Eds.), *A companion to qualitative research* (pp. 276-283). London: Sage Publications.

Kelly, S. A., & Melnyk, B. M. (2008). Systematic review of multicomponent interventions with overweight middle adolescents: implications for clinical practice and research. *Worldviews on Evidence-Based Nursing, 5*(3), 113-135.

Kemmis, S., & McTaggart, R. (1988). *The action research planner*. Melbourne: Deakin University

Kemmis, S., McTaggart, R., & Nixon, R. (2014). *The action research planner*: Springer.

Kemp, E., Bui, M., & Grier, S. (2011). Eating Their Feelings: Examining Emotional Eating in At-Risk Groups in the United States. *Journal of Consumer Policy, 34*(2), 211-229. doi: 10.1007/s10603-010-9149-y

Kiernan, M., & Winkleby, M. A. (2000). Identifying patients for weight-loss treatment: an empirical evaluation of the NHLBI obesity education initiative expert panel treatment recommendations. *Archives of Internal Medicine, 160*(14), 2169.

King, C. (2007). Health at every size approach to health management: the evidence is weighed. *Topics in Clinical Nutrition, 22*(3), 272-285.

Kirk, J., & Miller, M. (1986). *Reliability and validity in qualitative research*. London: Sage Publications.

Kirk, S. F. L., Penney, T. L., McHugh, T.-L., & Sharma, A. M. (2012). Effective weight management practice: a review of the lifestyle intervention evidence. *International Journal of Obesity, 36*, 178-185.

Kitchen, P. J., Kim, I., & Schultz, D. E. (2008). Integrated Marketing Communications: Practice Leads Theory. *Journal of Advertising Research, 48*(4), 531-546. doi: 10.2501/s0021849908080513

Kitzman-Ulrich, H., Wilson, D. K., St. George, S. M., Lawman, H., Segal, M., & Fairchild, A. (2010). The integration of a family systems approach for understanding youth obesity, physical activity, and dietary programs. *Clinical Child and Family Psychology Review, 13*(3), 231-253.

Kohn, M., Rees, J. M., Brill, S., Fonseca, H., Jacobson, M., Katzman, D. K., . . . Schneider, M. (2006). Preventing and treating adolescent obesity: A position paper of the Society for Adolescent Medicine. *Journal of Adolescent Health, 38*(6), 784-787. doi: 10.1016/j.jadohealth.2006.03.001

Konner, M., & Eaton, S. B. (2010). Paleolithic nutrition: twenty-five years later. *Nutrition In Clinical Practice: Official Publication Of The American Society For Parenteral And Enteral Nutrition, 25*(6), 594-602.

Kreindler, S. A., Dowd, D. A., Dana Star, N., & Gottschalk, T. (2012). Silos and Social Identity: The Social Identity Approach as a Framework for Understanding and Overcoming Divisions in Health Care. *Milbank Quarterly, 90*(2), 347-374. doi: 10.1111/j.1468-0009.2012.00666.x

Kumanyika, S., Jeffery, R. W., Morabia, A., Ritenbaugh, C., & Antipatis, V. J. (2002). Obesity prevention: the case for action. *International Journal of Obesity & Related Metabolic Disorders, 26*(3), 425.

Laddu, D., Dow, C., Hingle, M., Thomson, C., & Going, S. (2011). A Review of Evidence-Based Strategies to Treat Obesity in Adults. *Nutrition in Clinical Practice, 26*(5), 512-525.

Lakerveld, J., Brug, J., Bot, S., Teixeira, P. J., Rutter, H., Woodward, E., . . . Nijpels, G. (2012). Sustainable prevention of obesity through integrated strategies: The SPOTLIGHT project's conceptual framework and design. *BMC Public Health, 12*(1), 793-799. doi: 10.1186/1471-2458-12-793

Lambert, M. J. (2010). Therapist effects. In M. J. Lambert (Ed.), *Prevention of treatment failure: The use of measuring, monitoring, and feedback in clinical practice.* (pp. 175-202). Washington, DC US: American Psychological Association.

Lambert, M. J., Garfield, S. L., & Bergin, A. E. (2004). Overview, trends and future issues. In M. J. Lambert (Ed.), *Bergin and Garfield's handbook of psychotherapy and behavior change.* (5th ed., pp. 805-819). New York Wiley.

Lau, D. C. W. (2007). Synopsis of the 2006 Canadian clinical practice guidelines on the management and prevention of obesity in adults and children. *CMAJ: Canadian Medical Association Journal, 176*(8), 1103-1106.

Lawrence, S. A., Hazlett, R., & Hightower, P. (2010). Understanding and acting on the growing childhood and adolescent weight crisis: a role for social work. *Health & Social Work, 35*(2), 147-153.

Leahey, T. M., LaRose, J. G., Fava, J. L., & Wing, R. R. (2011). Social Influences Are Associated With BMI and Weight Loss Intentions in Young Adults. *Obesity, 19*(6), 1157-1162.

Leahey, T. M., & Wing, R. (2012). A randomized controlled pilot study testing three types of health coaches for obesity treatment: professional, peer and mentor. *Obesity, 179*, 1-7. doi: 10:10.1038/oby.2012.179

Lee, C. Y., Lee, H., Jeon, K. M., Hong, Y. M., & Park, S. H. (2011). Self-management program for obesity control among middle-aged women in Korea: A pilot study. *Japan Journal of Nursing Science, 8*(1), 66-75. doi: 10.1111/j.1742-7924.2010.00160.x

Leidy, H. J., Apolzan, J. W., Mattes, R. D., & Campbell, W. W. (2010). Food form and portion size affect postprandial appetite sensations and hormonal responses in healthy, nonobese, older adults. *Obesity (Silver Spring, Md.), 18*(2), 293-299.

Levine, R. S. (2013). Obesity, diabetes and periodontitis – a triangular relationship? *British Dental Journal, 215*(1), 35-39.

Levitan, R. D., & Davis, C. (2010). Emotions and Eating Behaviour: Implications for the Current Obesity Epidemic. *University of Toronto Quarterly, 79*(2), 783-799. doi: 10.3138/utq.79.2.783

Lewin, K. (1946). Action research and minority groups. *Journal Of Social Issues, 2*(4), 34-46.

Liamputtong, P. (2009). *Qualitative research methods (3rd ed.)*. Sydney: Oxford University Press.

Lichwala-Zyla, C. E. (2008). *Psychiatrists' perceptions and practices in treating obesity*. (68), ProQuest Information & Learning, US. Retrieved from http://gateway.library.qut.edu.au/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=psyh&AN=2008-99120-453&site=ehost-live Available from EBSCOhost psyh database.

Lillis, J., & B. (2008). *Acceptance and commitment therapy for the treatment of obesity-related stigma and weight control*. (68), ProQuest Information & Learning, US. Retrieved from http://gateway.library.qut.edu.au/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=psyh&AN=2008-99020-154&site=ehost-live

List, D. (2006). Action research cycles for multiple futures perspectives. *Futures, 38*, 673-684.

Littlefield, L. (2013, 25.06.13). New APS Institute to offer advanced training for psychologists. *InPsych, 35*, 6-7.

Loeb, K. L., Wilson, G. T., Labouvie, E., Pratt, E. M., Hayaki, J., Walsh, B. T., . . . Fairburn, C. G. (2005). Therapeutic Alliance and Treatment Adherence in Two Interventions for Bulimia Nervosa: A Study of Process and Outcome. *Journal of Consulting & Clinical Psychology, 73*(6), 1097-1107. doi: 10.1037/0022-006x.73.6.1097

Lourenço, S., Oliveira, A., & Lopes, C. (2012). The effect of current and lifetime alcohol consumption on overall and central obesity. *European Journal Of Clinical Nutrition, 66*(7), 813-818. doi: 10.1038/ejcn.2012.20

Lovejoy, J. C. (2013). Integrative Approaches to Obesity Treatment. *Integrative Medicine: A Clinician's Journal, 12*(2), 30-36.

Loveman, E., Frampton, G., Shepherd, J., Picot, J., Cooper, K., Bryant, J., . . . Clegg, A. (2011). The clinical effectiveness and cost-effectiveness of long-term weight management schemes for adults: a systematic review. *Health Technology Assessment, 15*(2), 1-182.

Lovibond, S. H., & Lovibond, P. F. (1995). *Manual for the depression anxiety stress scales.* (2nd ed.). Sydney: Psychology Foundation

Luders, C. (2004). Field observation and ethnography. In U. Flick, E. von Kardoff & I. Steinke (Eds.), *A companion to qualitative research* (pp. 222-230). London Sage Publications.

Ludwig, D. S. (2007). Childhood Obesity -- The Shape of Things to Come. *New England Journal of Medicine, 357*(23), 2325-2327.

Luhmann, N. (1995). *Social systems*. Stanford, CA: Stanford University Press.

Macdonald, M. (2007). Clinically obese children identified facilitators and barriers to initiating and maintaining the behaviours required for weight loss. *Evidence Based Nursing, 10*(3), 92-92.

Maddah, M., & Karandish, M. (2011). Gender difference in obesity management among Iranian patients with metabolic syndrome. *International Journal of Cardiology, 148*(1), 109-110. doi: 10.1016/j.ijcard.2011.01.028

Maggard, M. A., Shugarman, L. R., Suttorp, M., Maglione, M., Sugerman, H. J., Livingston, E. H., . . . Hilton, L. (2005). Meta-analysis: surgical treatment of obesity. *Annals of Internal Medicine, 142*(7), 547.

Mann, T., Tomiyama, A. J., Westling, E., Lew, A.-M., Samuels, B., & Chatman, J. (2007). Medicare's search for effective obesity treatments: Diets are not the answer. *American Psychologist, 62*(3), 220-233. doi: 10.1037/0003-066x.62.3.220

Marks, J., Barnett, L. M., Foulkes, C., & Allender, S. (2013). 'Whole of system' intervention points for obesity prevention: A case study from a long day care setting. *Australian & New Zealand Journal of Public Health, 37*(3), 291-291. doi: 10.1111/1753-6405.12052

Maynard, D. W., & Heritage, J. (2005). Conversation analysis, doctor-patient interaction and medical communication. *Medical Education, 39*, 428-435.

McGowan, P. T. (2012). Self-management education and support in chronic disease management. *Primary Care, 39*(2), 307-325.

McIntyre, A. (2008). *Participatory action research*. Los Angeles: Sage Publications.

McLaughlin, H. (2009). What's in a name: 'Client', 'patient', 'customer', 'consumer', 'expert by experience', 'service user'—What's next? *British Journal of Social Work, 39*(6), 1101-1117. doi: 10.1093/bjsw/bcm155

McNair, R. (2005). *Breaking down the silos: Interprofessional education and inter-professionalism for an effective rural health care workforce*. Paper presented at the National Rural Health Conference (9th) Alice Springs, Northern Territory. http://www.abc.net.au/rural/events/ruralhealth/2005/papers/8nrhcfinalpaper00617.pdf

Mehrjerdi, Y. Z. (2013). A dynamic systems approach to weight related health problems. *International Journal of Quality & Reliability Management, 30*(5), 571-589.

Mendez, M. A., Monteiro, C. A., & Popkin, B. M. (2005). Overweight exceeds underweight among women in most developing countries. *The American Journal Of Clinical Nutrition, 81*(3), 714-721.

Millar, L., Kremer, P., de Silva-Sanigorski, A., McCabe, M. P., Mavoa, H., Moodie, M., . . . Swinburn, B. A. (2011). Reduction in overweight and obesity from a 3-year community-based intervention in Australia: the 'It's Your Move!' project. *Obesity Reviews, 12*, 20-28. doi: 10.1111/j.1467-789X.2011.00904.x

Millard, A. D. (2012). The obesity pandemic: Implementing the evidence for children in Scottish families. *Public Health, 126*(2), 129-134. doi: 10.1016/j.puhe.2011.11.005

Miller, S. D., Duncan, B. L., Sorrell, R., & Brown, G. S. (2005). The partners for change outcome management system. *Journal of Clinical Psychology, 61*(2), 199-208.

Moisander, J., & Stenfors, S. (2009). Exploring the Edges of Theory-Practice Gap: Epistemic Cultures in Strategy-Tool Development and Use. *Organization, 16*(2), 227-247. doi: 10.1177/1350508408100476

Montes, M.-V., & Kravitz, L. (2011). Unraveling the Stress-Eating-Obesity Knot: Exercise can significantly mitigate the effects of stress and weight gain. *IDEA Fitness Journal, 8*(2), 44-50.

Morgan, D. (2009). The matter of "generalizability" in qualitative researches. from http://www.methodspace.com/forum/topics/the-matter-of-generalizability?commentId=2289984%3AComment%3A15963

Morrill, C. M., Leach, J. N., Radebaugh, M. R., & Shreeve, W. C. (1991). Adolescent obesity: Rethinking traditional approaches. *School Counselor, 38*(5), 347-351.

Morse, J. M. (1998). Validity by committee, Editorial, *Qualitative Health Research*, p. 443. Retrieved from http://gateway.library.qut.edu.au/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=afh&AN=734467&site=ehost-live

Morton, B. J. (2005). A multidisciplinary approach to weight management. *Asia Pacific Journal of Clinical Nutrition, 14*, S106-S106.

Munten, G., Cox, K., Garretsen, H., & Bongers, I. (2010). Implementation of evidence-based practice in nursing using action research: a review. *Worldviews on Evidence-Based Nursing, 7*(3), 135-157. doi: 10.1111/j.1741-6787.2009.00168.x

Muraven, M. (2010). Building self-control strength: Practicing self-control leads to improved self-control performance. *Journal of Experimental Social Psychology, 46*(2), 465-468.

Murphy, E., & Dingwall, R. (2003). *Qualitative methods and health policy research*. New York: Aldine de Gruyter.

Nader, P. R., Huang, T. T. K., Gahagan, S., Kumanyika, S., Hammond, R. A., & Christoffel, K. K. (2012). Next steps in obesity prevention: Altering early life systems to support healthy parents, infants, and toddlers. *Childhood Obesity (Print), 8*(3), 195-204. doi: 10.1089/chi.2012.0004

National Health and Medical Research Council. (1997). *Acting on Australia's weight: a strategic plan for the prevention of overweight and obesity*. Canberra: NHMRC Retrieved from http://www.nhmrc.gov.au/_files_nhmrc/publications/attachments/n22.pdf.

National Health and Medical Research Council. (2003a). *Clinical practice guidelines for the management of overweight and obesity in adults* Retrieved from http://www.health.gov.au/internet/main/publishing.nsf/Content/7AF116AFD4E2EE3DCA256F190003B91D/$File/adults.pdf

National Health and Medical Research Council. (2003b). Overweight and obesity in adults: a guide for practitioners. from http://www.health.gov.au/internet/main/Publishing.nsf/Content/CF511C5633F62237CA256F190003BC2F/$File/adults_gp.pdf

National Health and Medical Research Council. (2007). National statement on ethical conduct in human research. http://www.nhmrc.gov.au/publications/ethics/2007_humans/contents.htm

National Health and Medical Research Council. (2010). *A 'state of the knowledge' assessment of comprehensive interventions that address the drivers of obesity: final report, a rapid assessment*. University of Sydney: The Boden Institute of Obesity, Nutrition, Exercise and Eating Disorders.

Retrieved from https://www.nhmrc.gov.au/_files_nhmrc/file/your_health/obesity/boden_report_rapid_assessment_december_2010.pdf.

National Health and Medical Research Council. (2012a). *Australian dietary guidelines*. Canberra: Australian Government Retrieved from http://www.nhmrc.gov.au/_files_nhmrc/publications/attachments/n55_australian_dietary_guidelines_0.pdf.

National Health and Medical Research Council. (2012b). *Management of overweight and obesity in adults, adolescents and children: clinical practice guidelines for primary care health professionals (draft public consultation document)*. NHMRC Retrieved from

http://consultations.nhmrc.gov.au/files/consultations/drafts/draftobesityguidelines120329.pdf.

National Health and Medical Research Council. (2013). *Clinical practice guidelines for the management of overweight or obesity in adults, adolescents and children in Australia*. Canberra: Australian Government.

National Heart Lung and Blood Institute. (1998). Clinical guidelines on the identification, evaluation, and treatment of overweight and obesity in adults: The evidence report (N. I. o. Health, Trans.) (pp. 1-262).

National Heart Lung and Blood Institute. (2000). *The practical guide: identification, evaluation, and treatment of overweight and obesity in adults*: National Institutes of Health.

National Heart Lung and Blood Institute. (2004). Think tank on enhancing obesity research at the National Heart, Lung and Blood Institute. . from http://www.nhlbi.nih.gov/health/prof/heart/obesity/ob_res_exsum/ob_res_exsum.pdf

National Heart Lung and Blood Institute. (2005). *NHLBI working group on competencies for overweight and obesity identification, prevention and treatment.* . Retrieved from http://www.nhlbi.nih.gov/meetings/workshops/overweight/.

National Institute for Health and Clinical Excellence. (2006). Obesity: The prevention, identification, assessment and management of overweight and obesity in adults and children. . *Retrieved from http://www.nice.org.uk/nicemedia/pdf/CG43FullGuideline1.pdf*.

National Obesity Taskforce. (2003). *Healthy weight 2009: Australia's future*. Camberra: Commonwealth of Australia Retrieved from http://www.health.gov.au/internet/healthyactive/publishing.nsf/content/healthy_weight08.pdf/$File/healthy_weight08.pdf.

National Preventative Health Taskforce. (2009). *Australia: the healthiest country by 2020.* Canberra: Commonwealth of Australia Retrieved from http://www.health.gov.au/internet/preventativehealth/publishing.nsf/Content/CCD7323311E358BECA2575FD000859E1/$File/nphs-roadmap.pdf.

Nauta, H., Hospers, H. J., Jansen, A., & Kok, G. (2000). Cognitions in Obese Binge Eaters and Obese Non-Binge Eaters. *Cognitive Therapy and Research, 24*(5), 521-531.

Needham, B. L., Epel, E. S., Adler, N. E., & Kiefe, C. (2010). Trajectories of change in obesity and symptoms of depression: the CARDIA study. *American Journal of Public Health, 100*(6), 1040-1046. doi: 10.2105/ajph.2009.172809

Newell, B., Proust, K., Dyball, R., & McManus, P. (2007). Seeing obesity as a systems problem. *New South Wales Public Health Bulletin, 18*(12), 214-218.

Nguyen, T. T., Adair, L. S., Suchindran, C. M., He, K., & Popkin, B. M. (2009). The association between body mass index and hypertension is different between East and Southeast Asians. *American Journal of Clinical Nutrition, 89*(6), 1905-1912. doi: 10.3945/ajcn.2008.26809

Norris, S. L., Engelgau, M. M., & Narayan, K. M. (2001). Effectiveness of self-management training in type 2 diabetes: a systematic review of randomized controlled trials. *Diabetes Care, 24*(3), 561-587.

O'Brien, R. (2001). Um exame da abordagem metodológica da pesquisa ação [An overview of the methodological approach of action research]. . In R. Richardson (Ed.), *Teoria e prática da pesquisa ação [Theory and practice of action research]*. .

Oandasan, I., Baker, G. R., Barker, K., Bosco, C., D'Amour, D., Jones, L., . . . D., W. (2006). Teamwork in healthcare: Promoting effective teamwork in healthcare in Canada. Ottawa: Canadian Health Services Research Foundation.

Ogden, C. L., Carroll, M. D., Curtin, L. R., McDowell, M. A., Tabak, C. J., & Flegal, K. M. (2006). Prevalence of Overweight and Obesity in the United States, 1999-2004. *JAMA: Journal of the American Medical Association, 295*(13), 1549-1555. doi: 10.1001/jama.295.13.1549

Olshansky, S. J., Passaro, D. J., Hershow, R. C., Layden, J., Carnes, B. A., Brody, J., . . . Ludwig, D. S. (2005). A potential decline in life expectancy in the United States in the 21st century. *The New England Journal Of Medicine, 352*(11), 1138-1145.

Onakpoya, I., Posadzki, P., & Ernst, E. (2013). Chromium supplementation in overweight and obesity: a systematic review and meta-analysis of randomized clinical trials. *Obesity Reviews, 14*(6), 496-507. doi: 10.1111/obr.12026

Onakpoya, I. J., Perry, R., Zhang, J., & Ernst, E. (2011). Efficacy of calcium supplementation for management of overweight and obesity: systematic review of randomized clinical trials. *Nutrition Reviews, 69*(6), 335-343. doi: 10.1111/j.1753-4887.2011.00397.x

Orchard, C. A., Curran, V., & Kabene, S. (2005). Creating a culture for interdisciplinary collaborative professional practice. *Medical Education Online, 10*, 1-13.

Padwal, R., Klarenbach, S., Wiebe, N., Hazel, M., Birch, D., Karmali, S., . . . Tonelli, M. (2011). Bariatric Surgery: A Systematic Review of the Clinical and Economic Evidence. *Journal Of General Internal Medicine, 26*(10), 1183-1194.

Papas, M. A., Alberg, A. J., Ewing, R., Helzlsouer, K. J., Gary, T. L., & Klassen, A. C. (2007). The built environment and obesity. *Epidemiologic Reviews, 29*, 129-143.

Park, C. L. (Ed.). (2008). *The right circumstances for multidisciplinary research*. New York: Nova Science Publishers.

Park, J.-H., Lee, M.-J., Song, M.-Y., Bose, S., Shin, B.-C., & Kim, H.-J. (2012). Efficacy and Safety of Mixed Oriental Herbal Medicines for Treating Human Obesity: A Systematic Review of Randomized Clinical Trials. *Journal of Medicinal Food, 15*(7/8), 589-597. doi: 10.1089/jmf.2011.1982

Parliament of South Australia. (2004). *Inquiry into obesity*. Adelaide: Parliament House. Retrieved from http://www.sapo.org.au/pub/pub1862.html.

Parsonson, B. S. (2012). The case for practice-based evidence to support evidence-based practice. *Journal Of Primary Health Care, 4*(2), 98-99.

Patton, M. Q. (1990). Qualitative evaluation and research methods. Newbury Park, California: Sage Publications.

Pereira, T. (2010). *The therapeutic alliance and outcome in anorexia nervosa.* (70), ProQuest Information & Learning, US. Retrieved from http://gateway.library.qut.edu.au/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=psyh&AN=2010-99040-508&site=ehost-live Available from EBSCOhost psyh database.

Pereira, T., Lock, J., & Oggins, J. (2006). Role of therapeutic alliance in family therapy for adolescent anorexia nervosa. *International Journal of Eating Disorders, 39*(8), 677-684. doi: 10.1002/eat.20303

Perri, M. G., McAdoo, W. G., McAllister, D. A., Lauer, J. B., & Yancey, D. Z. (1986). Enhancing the efficacy of behavior therapy for obesity: Effects of aerobic

exercise and a multicomponent maintenance program. *Journal of Consulting and Clinical Psychology, 54*(5), 670-675. doi: 10.1037/0022-006x.54.5.670

Perri, M. G., Nezu, A. M., McKelvey, W. F., Shermer, R. L., Renjilian, D. A., & Viegener, B. J. (2001). Relapse prevention training and problem-solving therapy in the long-term management of obesity. *Journal of Consulting and Clinical Psychology, 69*(4), 722-726.

Perri, M. G., Sears, S. F., Jr., & Clark, J. E. (1993). Strategies for improving maintenance of weight loss. Toward a continuous care model of obesity management. *Diabetes Care, 16*(1), 200-209.

Peters, J. C., Wyatt, H. R., Donahoo, W. T., & Hill, J. O. (2002). From instinct to intellect: the challenge of maintaining healthy weight in the modern world. *Obesity Reviews: An Official Journal Of The International Association For The Study Of Obesity, 3*(2), 69-74.

Petry, N. M., Barry, D., Pietrzak, R. H., & Wagner, J. A. (2008). Overweight and obesity are associated with psychiatric disorders: Results from the National Epidemiologic Survey on Alcohol and Related Conditions. *Psychosomatic Medicine, 70*(3), 288-297. doi: 10.1097/PSY.0b013e3181651651

Pizzi, M. A., & Vroman, K. (2013). Childhood obesity: Effects on children's participation, mental health, and psychosocial development. *Occupational Therapy in Health Care, 27*(2), 99-112.

Popkin, B. M. (2011). Is the obesity epidemic a national security issue around the globe? *Current Opinion In Endocrinology, Diabetes, And Obesity, 18*(5), 328-331.

Popkin, B. M., Adair, L. S., & Ng, S. W. (2012). Global nutrition transition and the pandemic of obesity in developing countries. *Nutrition Reviews, 70*(1), 3-21. doi: 10.1111/j.1753-4887.2011.00456.x

Popkin, B. M., Duffey, K., & Gordon-Larsen, P. (2005). Environmental influences on food choice, physical activity and energy balance. *Physiology & Behavior, 86*(5), 603-613.

Porter, J., Bean, M., Gerke, C., & Stern, M. (2010). Psychosocial factors and perspectives on weight gain and barriers to weight loss among adolescents enrolled in obesity treatment. *Journal of Clinical Psychology in Medical Settings, 17*(2), 98-102.

Porter, J. S., Bean, M. K., Gerke, C. K., & Stern, M. (2010). Psychosocial factors and perspectives on weight gain and barriers to weight loss among adolescents enrolled in obesity treatment. *Journal of Clinical Psychology in Medical Settings, 17*(2), 98-102. doi: 10.1007/s10880-010-9186-3

Power, M. L. (2012). The human obesity epidemic, the mismatch paradigm, and our modern "captive" environment. *American Journal of Human Biology: The Official Journal of the Human Biology Council, 24*(2), 116-122.

Prentice, A. M. (2006). The emerging epidemic of obesity in developing countries. *International Journal Of Epidemiology, 35*(1), 93-99.

Proietto, J. (2011). Why is treating obesity so difficult? Justification for the role of bariatric surgery. *The Medical Journal Of Australia, 195*(3), 144-146.

Pronk, N. P., & Boucher, J. (1999). Systems approach to childhood and adolescent obesity prevention and treatment in a managed care organization. *International Journal of Obesity (formerly International Journal of Obesity and Related Metabolic Disorders), 23*(Supplement 2), S38-S42.

Psychology Board of Australia. (2012). Evidence-based practice. *Connections*, (6), 1. http://dynamail.entegy.com.au/em/mail/view.php?id=1913559&a=35890&k=b44e2cc

Puhl, R., Wharton, C., & Heuer, C. (2009). Weight bias among dietetics students: implications for treatment practices. *Journal Of The American Dietetic Association, 109*(3), 438-444. doi: 10.1016/j.jada.2008.11.034

Q-Comp. (2008). Clinical guidelines for the Queensland workers' compensation scheme: Psychiatric conditions. Retrieved 18.01.11, from http://www.qcomp.com.au/__data/assets/pdf_file/0015/2274/Psychiatric.pdf

Rabbitt, A., & Coyne, I. (2012). Childhood obesity: nurses' role in addressing the epidemic. *British Journal of Nursing, 21*(12), 731-735.

Rao, S., & Perry, C. (2003). Convergent interviewing: A starting methodology for enterprise research programs. *Qualitative Market Research, 6*(4), 236-247. doi: 10.1108/13522750310495328

Rao, S., & Perry, C. (2007). Convergent interviewing: A starting methodology for enterprise research programs. . In D. Hine & D. Carson (Eds.), *Innovative methodologies in enterprise research* (pp. 86-100). Northampton, Massachusetts, USA: Edward Elgar Publishing Limited.

Realpe, A., & Wallace, L. M. (2010). What is co-production? London: The Health Foundation.

Reason, P., & Bradbury, H. (Eds.). (2008). *Handbook of action research: Participative inquiry and practice*. London: Sage Publications.

Renders, C. M., Valk, G. D., Griffin, S., Wagner, E. H., Eijk, J. T., & Assendelft, W. J. (2001). Interventions to improve the management of diabetes mellitus in primary care, outpatient and community settings. *Cochrane Database Of Systematic Reviews (Online)*(1), CD001481.

Rhee, K. E., Phelan, S., & McCaffery, J. (2012). Early determinants of obesity: genetic, epigenetic, and in utero influences. *International Journal Of Pediatrics, 2012*, 463850-463850.

Riege, A. M., & Nair, G. (2004). The diversity of convergent interviewing applications for early researchers and postgraduate students. *The Marketing Review, 4*, 73-85.

Rittel, H. W. J., & Webber, M. M. (1973). Dilemmas in a general theory of planning. *Policy Sciences, 4*(2), 155-169.

Rivera, J. A., Barquera, S., González-Cossío, T., Olaiz, G., & Sepúlveda, J. (2004). Nutrition Transition in Mexico and in Other Latin American Countries. *Nutrition Reviews, 62*(7), 149-157. doi: 10.1301/nr.2004.jul.S149-S157

Ross, M. M., Kolbash, S., Cohen, G. M., & Skelton, J. A. (2010). Invited Review: Multidisciplinary Treatment of Pediatric Obesity: Nutrition Evaluation and Management. *Nutrition in Clinical Practice, 25*(4), 327-334. doi: 10.1177/0884533610373771

Rössner, S., Hammarstrand, M., Hemmingsson, E., Neovius, M., & Johansson, K. (2008). Long-term weight loss and weight-loss maintenance strategies. *Obesity Reviews: An Official Journal Of The International Association For The Study Of Obesity, 9*(6), 624-630.

Roth, A. (2006). *What works for whom?: A critical review of psychotherapy research*. New York: Guilford Press.

Ruelaz, A., Diefenbach, P., Simon, B., Lanto, A., & Arterburn, D. (2007). Perceived barriers to weight management in primary care—perspectives of patients and providers. *Journal Of General Internal Medicine, 22*(8), 1223-1223.

Rutter, H. (2011). Where next for obesity? *Lancet, 378*(9793), 746-747.

Rutter, H. (2012). The single most important intervention to tackle obesity…. *International Journal of Public Health, 57*(4), 657-658. doi: 10.1007/s00038-012-0385-6

Saelens, B. E., & Liu, L. (2007). Clinician's comment on treament of childhood overweight meta-analysis. *Health Psychology, 26*(5), 533-536.

Sandelowski, M. (1998). Writing a good read: Strategies for re-presenting qualitative data. *Research in Nursing and Health, 21*, 375-382.

Sarwer, D. B., Fabricatore, A. N., Jones-Corneille, L. R., Allison, K. C., Faulconbridge, L. N., & Wadden, T. A. (2008). Psychological issues following bariatric surgery. *Primary Psychiatry, 15*(8), 50-55.

Sassi, F., Devaux, M., Cecchini, M., & Rusticelli, E. (2009). The obesity epidemic: analysis of past and projected future trends in selected OECD countries. In O. Publishing (Ed.), *OECD Health Working Papers, No. 45*. Paris: OECD Publishing

Savoye, M., Berry, D., Dziura, J., Shaw, M., Serrecchia, J. B., Barbetta, G., . . . Caprio, S. (2005). Anthropometric and psychosocial changes in obese adolescents enrolled in a Weight Management Program. *Journal Of The American Dietetic Association, 105*(3), 364-370.

Schein, E. (1996). Kurt Lewin's change theory in the field and in the classroom: Notes toward a model of managed learning. *Systemic Practice and Action Research, 9*(1), 27-47.

Schoen, C., Osborn, R., How, S. K. H., Doty, M. M., & Peugh, J. (2009). In chronic condition: experiences of patients with complex health care needs, in eight countries, 2008. *Health Affairs*(1-2), w1-16. doi: 10.1377/hlthaff.28.1.w1

Scott, J. G., Cohen, D., DiCicco-Bloom, B., Miller, W. L., Stange, K. C., & Crabtree, B. F. (2008). Understanding healing relationships in primary care. *Annals of Family Medicine, 6*(4), 315-322. doi: 10.1370/afm.860

Seagle, H. M., Strain, G. W., Makris, A., & Reeves, R. S. (2009). Position of the American Dietetic Association: weight management. *Journal Of The American Dietetic Association, 109*(2), 330-346.

Seale, C. (1999). *The quality of qualitative research: Introducing qualitative methods*. London: Sage.

Senge, P., Kleiner, A., Roberts, C., Ross, R., & Smith, B. (1994). *The fifth discipline* London Nicholas Brealey Publishing

Serpas, S., Brandstein, K., McKennett, M., Hillidge, S., Zive, M., & Nader, P. R. (2013). San Diego healthy weight collaborative: A systems approach to address childhood obesity. *Journal of Health Care for the Poor & Underserved, 24*(2, Supp), 80-96.

Shafran, R., Clark, D. M., Fairburn, C. G., Arntz, A., Barlow, D. H., Ehlers, A., . . . Wilson, G. T. (2009). Mind the gap: Improving the dissemination of CBT. *Behaviour Research and Therapy, 47*(11), 902-909. doi: 10.1016/j.brat.2009.07.003

Sharf, J., Primavera, L. H., & Diener, M. J. (2010). Dropout and therapeutic alliance: A meta-analysis of adult individual psychotherapy. *Psychotherapy: Theory, Research, Practice, Training, 47*(4), 637-645. doi: 10.1037/a0021175

10.1037/a0021175.supp (Supplemental)

Sharma, A. M., & Padwal, R. (2010). Obesity is a sign – over-eating is a symptom: an aetiological framework for the assessment and management of obesity. *Obesity Reviews, 11*(5), 362-370. doi: 10.1111/j.1467-789X.2009.00689.x

Shaw, K. A., Gennat, H. C., O'Rourke, P., & Del Mar, C. (2009). Exercise for overweight or obesity (Review). Retrieved 15.02.12, from Wiley

Shaw, K. A., O'Rourke, P., Del Mar, C., & Kenardy, J. (2005). Psychological interventions for overweight or obesity. *Cochrane Database of Systematic Reviews*(2).

Shevell, M. I. (2009). What do we call 'them'?: the 'patient' versus 'client' dichotomy. *Developmental Medicine & Child Neurology, 51*(10), 770-772. doi: 10.1111/j.1469-8749.2009.03304.x

Singh, N. N., Lancioni, G. E., Singh, A. N., Winton, A. S. W., Singh, J., McAleavey, K. M., . . . Joy, S. D. S. (2008). A mindfulness-based health wellness program for managing morbid obesity. *Clinical Case Studies, 7*(4), 327-339. doi: 10.1177/1534650107312869

Smith, J. (2007). The marketed environment. In J. Dixon & D. H. Broom (Eds.), *The seven deadly sins of obesity: How the modern world is making us fat*. Sydney UNSW Press.

Sogg, S., & Gorman, M. J. (2008). Interpersonal changes and challenges after weight-loss surgery. *Primary Psychiatry, 15*(8), 61-66.

Spence, J. C., Cutumisu, N., Edwards, J., Raine, K. D., & Smoyer-Tomic, K. (2009). Relation between local food environments and obesity amongadults. *BMC Public Health, 9*, 192-197. doi: 10.1186/1471-2458-9-192

Stanton, R. (2011). United ACTIONS. *Australian Doctor*, 39-41.

Stanton, R. A. (2006). Nutrition problems in an obesogenic environment. *The Medical Journal Of Australia, 184*(2), 76-79.

Steele, R. G., & Van Allen, J. (2011). The treatment of pediatric obesity: Bringing contexts and systems into focus. *Children's Health Care, 40*(3), 171-178. doi: 10.1080/02739615.2011.590384

Stringer, E. T., & Dwyer, R. (2005). *Action research in human services*. Upper Saddle River, New Jersey: Pearson Education.

Stringer, E. T., & Genat, W. J. (2004). *Action research in health*. New Jersey: Pearson Education

Stubbs, J., Whybrow, S., Teixeira, P., Blundell, J., Lawton, C., Westenhoefer, J., . . . Raats, M. (2011). Problems in identifying predictors and correlates of weight loss and maintenance: implications for weight control therapies based on behaviour change. *Obesity Reviews, 12*(9), 688-708. doi: 10.1111/j.1467-789X.2011.00883.x

Sung-Chan, P., Sung, Y. W., Zhao, X., & Brownson, R. C. (2013). Family-based models for childhood-obesity intervention: A systematic review of randomized controlled trials. *Obesity Reviews, 14*(4), 265-278.

Sutin, A. R., Ferrucci, L., Zonderman, A. B., & Terracciano, A. (2011). Personality and obesity across the adult life span. *Journal of Personality and Social Psychology*. doi: 10.1037/a0024286

Swift, J. A., Hanlon, S., El-Redy, L., Puhl, R. M., & Glazebrook, C. (2013). Weight bias among UK trainee dietitians, doctors, nurses and nutritionists. *Journal of Human Nutrition & Dietetics, 26*(4), 395-402.

Swinburn, B., Egger, G., & Raza, F. (1999). Dissecting obesogenic environments: The development and application of a framework for identifying and prioritizing environmental interventions for obesity. *Preventive Medicine, 29*, 563-570.

Swinburn, B., Sacks, G., Hall, K., McPherson, K., Finegood, D., Moodie, M., & Gortmaker, S. (2011). The global obesity pandemic: shaped by global drivers and local environments. *Lancet, 378*(9793), 804-814.

Swinburn, B., Sacks, G., & Ravussin, E. (2009). Increased food energy supply is more than sufficient to explain the US epidemic of obesity. *American Journal of Clinical Nutrition, 90*(6), 1453-1456. doi: 10.3945/ajcn.2009.28595

Taber, B. J., Leibert, T. W., & Agaskar, V. R. (2011). Relationships among client–therapist personality congruence, working alliance, and therapeutic outcome. *Psychotherapy, 48*(4), 376-380. doi: 10.1037/a0022066

Taubes, G. (2014, Feburary 10, 2014). Why nutrition is so confusing, Diet and Fitness, *Sydney Morning Herald*. Retrieved from http://www.smh.com.au/lifestyle/diet-and-fitness/why-nutrition-is-so-confusing-20140210-32aod.html

Teixeira, P. J., Going, S. B., Sardinha, L. B., & Lohman, T. G. (2005). A review of psychosocial pre-treatment predictors of weight control. *Obesity Reviews: An Official Journal Of The International Association For The Study Of Obesity, 6*(1), 43-65.

The British Dietetic Association. (2011). Obesity: A weighty issue 2013, from http://www.bda.uk.com/publications/keyfacts/KeyFactsObesity.pdf

Tremblay, A., Pelletier, C., Doucet, E., & Imbeault, P. (2004). Thermogenesis and weight loss in obese individuals: a primary association with organochlorine pollution. *International Journal of Obesity & Related Metabolic Disorders, 28*(7), 936-939. doi: 10.1038/sj.ijo.0802527

Tsai, A. G., & Wadden, T. A. (2005). Systematic review: an evaluation of major commercial weight loss programs in the United States. *Annals of Internal Medicine, 142*(1), 56.

Tsai, A. G., & Wadden, T. A. (2009). Treatment of obesity in primary care practice in the United States: A systematic review. *Journal Of General Internal Medicine, 24*(9), 1073-1079. doi: 10.1007/s11606-009-1042-5

Tsigos, C., Hainer, V., Basdevant, A., Finer, N., Fried, M., Mathus-Vliegen, E., . . . Zahorska-Markiewicz, B. (2008). Management of Obesity in Adults: European Clinical Practice Guidelines. *Obesity Facts, 1*(2), 106-116.

Tsui, A. S. (2013). The Spirit of Science and Socially Responsible Scholarship. *Management & Organization Review, 9*(3), 375-394. doi: 10.1111/more.12035

Turk, M. W., Yang, K., Hravnak, M., Sereika, S. M., Ewing, L. J., & Burke, L. E. (2009). Randomized clinical trials of weight loss maintenance: a review. *Journal of Cardiovascular Nursing, 24*(1), 58-80. doi: 10.1097/01.jcn.0000317471.58048.32

Turner, S. L., Thomas, A. M., Wagner, P. J., & Moseley, G. C. (2008). A collaborative approach to wellness: diet, exercise, and education to impact behavior change. *Journal Of The American Academy Of Nurse Practitioners, 20*(6), 339-344.

Ulijaszek, S. J. (2007). Obesity: a disorder of convenience. *Obesity Reviews, 8*(Supplement 1), 183-187.

University of Sydney. (2013). Physiotherapy. Retrieved 12.05.13, from http://sydney.edu.au/health-sciences/disciplines/physiotherapy/

Van De Ven, A. H., & Johnson, P. E. (2006). KNOWLEDGE FOR THEORY AND PRACTICE. *Academy of Management Review, 31*(4), 802-821. doi: 10.5465/AMR.2006.22527385

Vandenbroeck, P., Goossens, J., & Clemens, M. (2007). Foresight: Tackling Obesities: Future Choices - Building the Obesity System Map (pp. 80). London, Worcestershire, United Kingdom: UK Department for Business Innovation and Skills (BIS), Government Office for Science.

Vernay, M., Malon, A., Oleko, A., Salanave, B., Roudier, C., Szego, E., . . . Castetbon, K. (2009). Association of socioeconomic status with overall overweight andcentral obesity in men and women: the French Nutrition and HealthSurvey 2006. *BMC Public Health, 9*, 215-222. doi: 10.1186/1471-2458-9-215

Vioque, J., Ramos, J. M., Navarrete-Muñoz, E. M., & García-de-la-Hera, M. (2010). A bibliometric study of scientific literature on obesity research in PubMed (1988-2007). *Obesity Reviews: An Official Journal Of The International Association For The Study Of Obesity, 11*(8), 603-611.

Visram, S., Crosland, A., & Cording, H. (2009). Triggers for weight gain and loss among participants in a primary care-based intervention. *British Journal Of Community Nursing, 14*(11), 495-501.

Visscher, T. L. S., & Seidell, J. C. (2001). The public health impact of obesity. *Annual Review Of Public Health, 22*(1), 355.

Wade, T. D., Bergin, J. L., Tiggemann, M., Bulik, C. M., & Fairburn, C. G. (2006). Prevalence and long-term course of lifetime eating disorders in an adult Australian twin cohort. *Australian and New Zealand Journal of Psychiatry, 40*(2), 121-128. doi: 10.1111/j.1440-1614.2006.01758.x

Wagner, E. H., Austin, B. T., Davis, C., Hindmarsh, M., Schaefer, J., & Bonomi, A. (2001). Improving chronic illness care: translating evidence into action: interventions that encourage people to acquire self-management skills are essential in chronic illness care. *Health Affairs, 20*(6), 64-78.

Walls, H. L., Peeters, A., Proietto, J., & McNeil, J. J. (2011). Public health campaigns and obesity - a critique. *BMC Public Health, 11*(1), 136-142. doi: 10.1186/1471-2458-11-136

Wampold, B. E. (2001). *The great psychotherapy debate: Models, methods and findings.* . Marwah, NJ: Erlbaum.

Wampold, B. E. (2006). Three ways to improve our effectiveness. *The Division of Psychotherapy, Division 29*.

Wamsteker, E. W., Geenen, R., Zelissen, P. M. J., Furth, E. F. v., & Iestra, J. (2009). Unrealistic Weight-Loss Goals among Obese Patients Are Associated with Age and Causal Attributions. *Journal Of The American Dietetic Association, 109*(11), 1903-1908.

Wang, Y. C., McPherson, K., Marsh, T., Gortmaker, S. L., & Brown, M. (2011). Health and economic burden of the projected obesity trends in the USA and the UK. *Lancet, 378*(9793), 815-825.

Waterman, H., Tillen, D., Dickson, R., & de Koning, K. (2001). Action research: A systematic review and guidance for assessment. . *Health Technology Assessment, 5*(23), 1-166. doi: 10.3310/hta5230

Waters, E., de Silva-Sanigorski, A., Hall, B. J., Brown, T., Campbell, K. J., Gao, Y., . . . Summerbell, C. D. (2011). Interventions for preventing obesity in children. *Cochrane Database of Systematic Reviews*(12).

Webb, H. (2009). 'I've put weight on cos I've bin inactive, cos I've 'ad me knee done': moral work in the obesity clinic. *Sociology of Health & Illness, 31*(6), 854-871. doi: 10.1111/j.1467-9566.2009.01188.x

Weinstein, P. K. (2006). A review of weight loss programs delivered via the Internet [corrected] [published erratum appears in J CARDIOVASC NURS 2007 Mar-Apr;22(2):137]. *Journal of Cardiovascular Nursing, 21*(4), 251-260.

Werrij, M. Q., Jansen, A., Mulkens, S., Elgersma, H. J., Ament, A. J. H. A., & Hospers, H. J. (2009). Adding cognitive therapy to dietetic treatment is associated with

less relapse in obesity. *Journal of Psychosomatic Research, 67*(4), 315-324. doi: 10.1016/j.jpsychores.2008.12.011

WHO. (2004). Appropriate body-mass index for Asian populations and its implications for policy and intervention strategies. *The Lancet, 363*, 157-163.

Wilkinson, D., Mott, K., Morey, S., Beilby, J., Price, K., Best, J., . . . Eley, V. (2003). Evaluation of the Enhanced Primary Care (EPC) Medicare Benefits Schedule (MBS) Items: Final report. Canberra: Department of Health and Ageing.

Williams, W., & Lewis, D. (2005). Convergent interviewing: A tool for strategic investigation. *Strategic Change, 14*. doi: 10.1002/jsc.719

Wing, R., & Hill, J., O. (2001). Successful weight loss maintenance. *Annu. Rev. Nutr., 21*, 321-341. doi: 10.1146/21,1,323

Woolf, S. H., Grol, R., Hutchinson, A., Eccles, M., & Grimshaw, J. (1999). Potential benefits, limitations, and harms of clinical guidelines. *British Medical Journal, 318*, 527-530.

Woolford, S. J., Sallinen, B. J., Clark, S. J., & Freed, G. L. (2011). Results From a Clinical Multidisciplinary Weight Management Program. *Clinical Pediatrics, 50*(3), 187-191. doi: 10.1177/0009922810384845

World Health Organisation. (1988). Learning together to work together for health: Report of a WHO study group on multiprofessional education of health personnel - the team approach. Geneva: World Health Organisation

World Health Organisation. (2003). *Expert report on diet, nutrition and the prevention of chronic diseases: report of the joint WHO/FAO expert consultation.* (Technical report series 916). Geneva: WHO Retrieved from http://whqlibdoc.who.int/trs/WHO_TRS_916.pdf.

World Health Organisation. (2004). Global Strategy on Diet, Physical Activity and Health. http://www.who.int/dietphysicalactivity/strategy/eb11344/strategy_english_web.pdf

World Health Organisation. (2010). WHO Global Infobase: data on overweight and obesity, mean BMI, healthy diets and physical inactivity. Retrieved 18 November 2011, from https://apps.who.int/infobase/

World Health Organisation. (2013, March 2013). Noncommunicable diseases. *Fact Sheet.* Retrieved 01.06.13, 2013, from http://www.who.int/mediacentre/factsheets/fs355/en/

World Health Organisation Collaborating Centre. (2004). *Management of mental disorders* (4th ed. Vol. 1). Sydney: World Health Organisation

Yaskin, J., Toner, R. W., & Goldfarb, N. (2009). Obesity management interventions: a review of the evidence. *Population Health Management, 12*(6), 305-316. doi: 10.1089/pop.2008.0049

Zhao, G., Ford, E. S., Li, C., Tsai, J., Dhingra, S., & Balluz, L. S. (2011). Waist circumference, abdominal obesity, and depression among overweight and obese U.S. adults: National Health and Nutrition Examination Survey 2005-2006. *BMC Psychiatry, 11*, 130-130.

Zimmet, P., Campbell, L., Toomath, R., Twigg, S., Wittert, G., & Proietto, J. (2011). Bariatric surgery to treat severely obese patients with type 2 diabetes: A consensus statement. *Obesity Research & Clinical Practice, 5*(1), e71-e78.

Zuber-Skerrit, O., & Perry, C. (2002). Action research within organisations and university thesis writing. *The Learning Organisation, 9*(4), 171-179. doi: 10.1108

[Extra page inserted to ensure correct even-page footer for this section. Delete this when bibliography is at least 2 pages long.]

Appendices

Appendix A: Iterations of Research Design Planning

This appendix outlines the iterative changes in the proposed title, purpose, research design, and research questions or thematic concerns, as documented in the initial research proposal, stage 2, confirmation, and final thesis document. The focus of the study was refined through successive action research cycles, moving from a broader to a more specific focus.

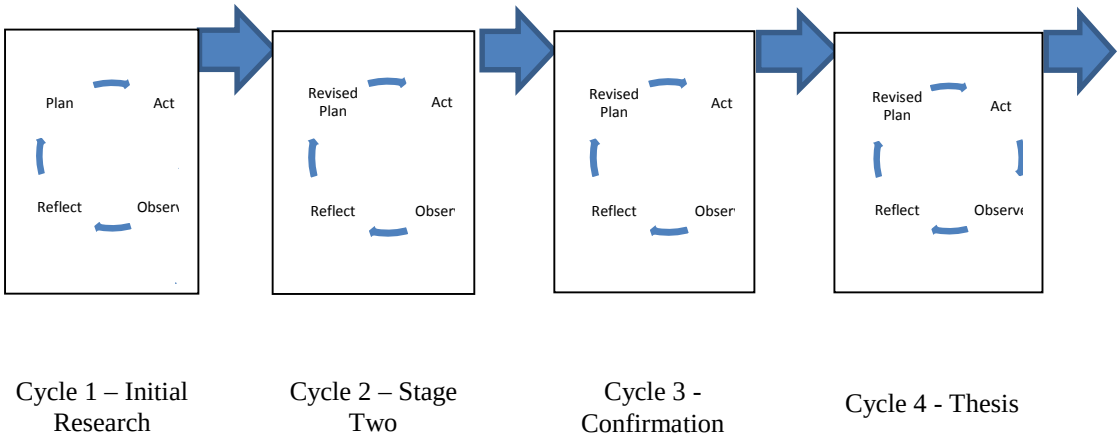

Figure A. Action research cycles for documenting the current research.

Initial Research Proposal (cycle 1 of documented planning)

Title: Development and testing of a weight management model including diet, psychology, and exercise that can be tailored to the individual and optimises factors associated with better outcomes. Comparing the effectiveness of the model in both online and offline situations.

Purpose: The research will include the development, implementation, and refinement of both an online and offline weight management program that sources knowledge and strategies from dietetics, psychology, and exercise physiology.

My research will focus on the population that already fulfils the criteria for overweight or obesity.

This project will trial and compare other therapies that have recently gained popularity including Acceptance and Commitment Therapy (ACT) and Emotional Freedom Techniques (EFT).

This study will be conducted under the assumption that there appears to be no single universal approach to weight management, and that assessing and identifying person-approach fit and combining this with other factors identified in the literature known to optimise therapeutic outcomes such as client factors and alliance, as well as drawing on resources from the three disciplines already specified, will achieve more enduring health outcomes for users.

Since many people prefer utilising the Internet for behaviour based programs (e.g. weight watchers online, the biggest loser, Diettv.com etc.), the results of an offline version of the program will be compared to those of the online program. Alliance factors have been identified as an important contribution to therapeutic outcomes, and as online programs do not engender this construct, the comparison will explain how this construct could be managed in an online environment.

Research Questions or Thematic Concerns:

- Does assessing person-approach fit and drawing on three disciplines (psychology, dietetics and exercise physiology) optimise weight loss/physical fitness outcomes?
- Is there a person-specific guide that can be used to optimise successful long-term weight maintenance?
- What are some correlates of successful long-term weight loss?
- Are there any moderating or mediating factors such as personality style, number of attempts at weight loss, exercise compliance, etc. that should be considered in designing weight/health management programs for individuals?
- Are the bio-psychosocial obstacles to maintaining weight loss universal or specific to certain personality types, and does addressing these issues optimise outcomes?
- Are alliance factors a significant contributing factor in the effectiveness of weight loss programs, and if so, how can this be addressed in an online environment?

Research Method: The research will employ both qualitative and quantitative methods (e.g. cross-over designs to establish which psychological therapy, for

example, cognitive behavioural therapy (CBT) or ACT, has been more effective; and statistical modelling or multitrait-multimethod matrices to identify if any mediating or moderating factors exist such as personality style, number of attempts at weight loss, gender, age, locus of control, exercise compliance, etc. that affect weight loss and maintenance).

Stage 2 (cycle 2 of documented planning)

Title: A Multi-Component Approach to Obesity Management

Purpose: The current research will focus on the development of a multi-component assessment tool that will enable multiple professional disciplines to collaborate with an obese or overweight target population in designing tailored weight management interventions.

Research Questions or Thematic Concerns: The initial research question could be:

- Will a dynamic multi-component health assessment process for overweight and obese clients, conducted and coordinated by multiple disciplines, in collaboration with the client, in naturalistic settings, facilitate the development and implementation of more tailored and effective weight management interventions for the overweight and obese client?

As an action research methodology will be used, questions will evolve from the methodological process, namely experience, as opposed to being a priori. Notwithstanding initial research, questions relevant to the methodology may be:

- Who are the most representative stakeholder populations to include in the current research?
- What are the stakeholders' beliefs about the current assessment and treatment of obesity? What do current stakeholders use to inform decisions about obesity assessments, interventions, and maintenance?
- What are their opinions about a multi-component, multidisciplinary approach to assessment, intervention and weight maintenance?
- What do they believe are the barriers and solutions to multiple disciplines working together with individuals seeking to lose weight?

- Which support staff do they believe could manage a multi-disciplinary assessment measure? In a shared care arrangement, what are the skills and contributions expected of the various disciplines?
- How will the process be conducted such that time, resources, and outcomes are optimised and costs minimised?
- What do the various disciplines believe are important components to include in a collaborative multi-disciplinary obesity assessment?
- What do the various disciplines believe are the reasons people drop out?
- Does identifying barriers to weight loss and tailoring interventions to address these barriers optimise outcomes?
    - *What are the service provider stakeholders' beliefs about the barriers or obstacles that prevent them from being effective practitioners in the management of obesity?*
    - *What do the stakeholders (clients) believe would improve their effectiveness in delivering weight management assessments and interventions?*
    - *What are the stakeholders' (clients) beliefs about obstacles or barriers to obesity management?*
    - *What do the stakeholders (clients) believe would improve the effectiveness of weight management interventions?*
- Does the identification of causative factors to obesity assist in tailoring interventions that will optimise outcomes?
    - *What are the service provider stakeholders' beliefs about the causes of obesity? Do they use this information in developing treatment programs?*
    - *What are the stakeholders' (clients) beliefs about the causes of their obesity?*
- Does the identification of maintaining factors for obesity assist in tailoring interventions that will optimise outcomes?

- *What are the service provider stakeholders' beliefs about the factors that maintain obesity? Do they use this information in developing treatment programs?*
- *What are the stakeholders' (clients) beliefs about the factors that maintain their obesity?*

- Does the identification of relapse factors to obesity assist in tailoring interventions that will optimise outcomes?
    - *What are the service provider stakeholders' beliefs about the causes of relapse on weight management programs? Do they use this information in developing and monitoring treatment programs?*
- What are the stakeholders' (clients) beliefs about the causes of relapse on weight management programs?
- What are the stakeholders' beliefs about therapist factors and client factors?

As this research will be exploratory there are no hypotheses.

Research Method: An exploratory action research methodology called Systems Methodology (SSM) will be used as the overriding model to develop the assessment tool. SSM is predicated on the notion that emergent properties or themes become detectable when one immerses oneself in increasing levels of complexity. These themes will emerge in response to the processes used to collect data including document analysis, conversational analyses, and stakeholder meetings or focus groups, which in turn will be used to form the questions posed in the convergent interviews conducted with relevant identified stakeholders associated with the management of obesity. The process will iterate through action research cycles of planning, acting, and reflecting until a distillation of relevant information using theme or theory building processes inherent in the convergent interviewing process can be effectively applied to the problem.

The research plan stages were proposed as follows:

Stage 1 - SSM. Examining the problem situation (obesity assessment and management) by immersing myself in a literature review, reflection on experience, and conversations with colleagues and the target population.

Stage 2 – SSM. The first step will be the creation of a steering or research committee composed of representative experts from the target disciplines and target population. This team of representative stakeholders will collaborate with the chief researcher(s) in examining and defining obesity management issues and developing a richer picture of the issue. This will be followed by a situational and problem analysis. The idea is to keep the project as vague and open as possible in the early stages to generate new insights and ideas relevant to the assessment and management of obesity. Data mining will be achieved through:

a) Literature review using exploratory document analysis.

Document analysis will identify gaps in the literature and themes for inclusion in convergent interviewing. The evidence from the document analysis will also initiate a dialectic with the information generated by the steering/research committee and the convergent interviews, and therefore provide rigour (Dick & Swepson, 1994).

b) Practice-based evidence using convergent interviews

Convergent interviews (Dick, 1990; Dick, 1998) were selected as the in-depth interviewing process required to collect data. Convergent interviewing is an action research technique and was selected in lieu of grounded theory to develop theory. Whereas grounded theory builds theory grounded in data, action research methods build theory from experience. Action research is promoted as participative in building theory whereas grounded theory participants are usually involved as informants and the researcher builds the theory (B. Dick, personal communication, March 20, 2010).

c) Narrative enquiry methodology and conversational analysis

Since the chief researcher will be working with the target population in a naturalistic setting over the course of this research, a narrative enquiry methodology (Liamputtong, 2009), a variation of which is referred to as conversational analysis (Maynard & Heritage, 2005; Webb, 2009), will also be used to source information relevant to the rich picture being developed and form a dialectic for the other qualitative processes.

Stage 3 – SSM. Reaching a root definition of significant facets of the system of interest will be achieved by distilling information from document analysis, the outcome of convergent interviews, steering committee input, and conversations with the research team, colleagues, and clients.

Stage 4 – SSM. Conceptualisations and models of the systems, intended as improvements, will be developed with all stakeholders.

Stage 5 - SSM. This step involves the comparison of the ideal concept with current models or systems. This provides a further dialectic to refine the ideal model proposed and to increase its practical application.

Stage 6 - SSM. In this stage, feasible and desirable changes are identified by addressing what may and may not work with the steering committee.

Stage 7 – SSM. This is the action stage, which will involve the development of the assessment instrument. In view of the complexity of the suggested assessment process, it is predicted that a multivariate decision tree treatment algorithm will provide the most efficiency in the process of structuring the assessment. The NHLBI (National Heart Lung and Blood Institute, 1998, 2000) and the NHMRC (National Health and Medical Research Council, 2003a) use simple treatment algorithms that can act as a starting or reference point.

The assessment tool will be designed for team situations, where a number of disciplines will be involved in the assessment and treatment of the client. While the initial component of the assessment will be a general screening instrument, further components of the assessment, if identified as areas for further exploration, will be more complex and conducted by registered professionals, if required. Notwithstanding, it is the aim of this research to develop an assessment instrument that can be facilitated by a trained technician or professional such as a practice or community nurse, or health assistant.

The first draft of the assessment will be piloted and refined through continuous action research cycles. SSM projects never finish, nor is it necessary for them to do so. The model is expected to continue evolving in response to an ever-changing environment.

Final Stage: Implementation of processes to optimise team functioning and client outcomes.

Confirmation (cycle 3 of documented planning)

Title: A Multicomponent Multidisciplinary Approach to Obesity Management

Purpose: There is a need for more well designed, MC, MD, longer term studies performed in normal settings that provide evidence of what does and does not work and which key determinants of intervention programs prove effective (National Institute for Health and Clinical Excellence, 2006; World Health Organisation, 2004). The current research argues that a multicomponent multidisciplinary (MCMD) assessment of obesity has the potential to optimise obesity management outcomes if the overall approach (i.e. assessment, implementation and monitoring strategies) can be tailored to the individual, the professionals using the instrument, and the environment it is applied in. It is proposed that if the MCMD approach can be applied in a way that is responsive to the physical, social, and psychological needs of the individual and his or her situation and environment during treatment, and both therapeutic factors and client factors are attended to, that more consistent and sustainable outcomes in obesity management could be achieved.

Research Questions or Thematic Concerns:

- Given that evidence supports MC interventions combining diet, psychology and physical activity, how can a MCMD assessment for obesity management be developed that is responsive to the needs of the individual seeking treatment and the professionals using the tool?

The initial research question posed in the convergent interviews that were conducted as part of the preliminary data collection was:

- What needs to be considered for inclusion in an assessment tool for obesity management?

The data analysis will contribute answers to the initial research question and identify relevant themes to be explored as part of the ongoing research including literature review, document analysis, observation, and critical reflection. This collection of data will contribute answers to the second research question:

- How can the data collected during the course of the research be applied to a MCMD assessment for obesity management?

Questions that have evolved thus far in the research include:

- Who are representative stakeholder populations to include in the current research?

- What are the stakeholders' opinions, beliefs, and attitudes towards what should be included in a MC assessment for obesity management?
- What do the various disciplines believe are important discipline-specific components to include in a collaborative MD obesity assessment? In a shared care arrangement what are the skills and contributions expected of the various disciplines? What are the professional boundaries?
- What do current stakeholders use to inform decisions about obesity assessments, interventions, and maintenance?
- How could a MCMD assessment process be conducted such that time, resources, and outcomes are optimised and costs minimised?
- What are the stakeholders' beliefs about therapist factors and client factors in designing the assessment tool?

Research Method: This research will use action research as the overarching qualitative research method. The family of action research methodologies used to explore the evidence from practice-based evidence among stakeholders will include convergent interviewing, document analysis, and observation. These qualitative sources of information will then be triangulated with evidence-based practice presented in the literature to identify a richer data set of assessment themes to be included in a MCMD assessment tool. Using qualitative action research methods will provide the flexibility necessary to design and evolve an assessment tool that is responsive to information and experience generated by the research process.

Thesis (cycle 4 of documented planning)

Title: A Multicomponent Multidisciplinary Approach to Obesity Management

Research Questions or Thematic Concerns: The working party discussed concerns regarding the ineffectiveness in trying to apply a 'one size fits all' and/or evidence-based approaches developed in research settings in the 'real world,' and the failure of position paper and obesity guidelines to translate their recommendations for MC and/or MD approaches for weight loss into practice, and for practitioners to adopt these recommendations. We concurred that despite recommendations for a MC and/or MD approach, no one is really certain how this should work in detail. Subsequently,

we agreed that the development of a MCMD approach to obesity management, using action research methodologies, was a feasible and relevant focus for the research. Based on the research problems outlined in the thesis (Section 1.2.1), we also agreed that the approach or model should target both practitioners and clients while maintaining the flexibility to be adapted to a number of delivery platforms ranging from research settings to multidisciplinary clinics and sole practitioner clinics. To address the concern that approaches to obesity management are created by people who do not work on the coal face, we agreed that the current model should be informed by a variety of stakeholders ranging from service providers and researchers to the users themselves.

Research Method: The working party agreed that qualitative research methods, specifically action research, would be useful in triangulating evidence from the literature with practice-based evidence provided by stakeholders to ensure a richer data set of information for the identification of themes and methods to be included in a multi-component multidisciplinary approach to obesity management. Qualitative action research methods were considered to have the flexibility required to design and evolve an approach that is responsive to information and experience generated by the research process over time. Action research methods have the facility to identify: what does and does not work for a particular individual in relation to obesity management whether they are a researcher, practitioner, or client; the solutions that could address barriers to effective obesity management; and the key determinants of effective obesity management intervention programs specific to the ultimate end-user, the client. Due to the cyclic nature of action research designs (Reason & Bradbury, 2008), findings early in the research process raised new questions which were investigated in subsequent cycles of inquiry. The iterative action research cycles provided data which was triangulated with the literature, allowing a distillation of evidence-based evidence and practice-based evidence to inform the approach to obesity management developed as part of this research. Research design and methodological issues are elaborated upon in Chapter 3.

Appendix B: Participant Recruitment

Queensland University of Technolog
Brisbane Australia

PARTICIPATE IN RESEARCH

Information for Prospective Participants

The following research activity has been reviewed via QUT arrangements for the conduct of research involving human participation.

If you choose to participate, you will be provided with more detailed participant information, including who you can contact if you have any concerns.

A Multi-Component Approach to Obesity Management (practitioner & participant)

Research Team Contacts

Anita Cochrane —
Chief Investigator (IHBI)
0419 560 059
a.cochrane@student.qut.edu.au

Andrew Hills —
Primary Supervisor (IHBI)
3138 6087
a.hills@qut.edu.au

WITHDRAWAL OF CONSENT FORM FOR QUT RESEARCH PROJECT

A Multi-Component Approach to Obesity Management (client & practitioner)

Research Team Contacts

Anita Cochrane —
Chief Investigator (IHBI)
0419 560 059
a.cochrane@student.qut.edu.au

Andrew Hills —
Primary Supervisor (IHBI)
3138 6087
a.hills@qut.edu.au

I hereby wish to WITHDRAW my consent to participate in the research project named above.

I understand that this withdrawal WILL NOT jeopardise my relationship with Queensland University of Technology.

Name .....

Signature **Date** .....

What is the purpose of the research?

The purpose of this research is to develop a multi-component assessment tool that will enable people who are overweight or obese to be assessed by a multidisciplinary team of professionals. Implementation of the assessment tool that is developed is not part of the current research. The research proposes that involving a team of health professionals in the assessment of overweight and obesity will enable interventions to be designed that meet the holistic needs of the person seeking treatment and thereby optimise weight loss outcomes.

Who is funding this research?

The project is funded by QUT. The funding body will not have access to personally identifying information about you that may be obtained during the project.

Are you looking for people like me?

The research team is looking for two participant groups. One participant group is the multi-disciplinary professionals who are likely to be required to assess overweight and obese people and provide weight management advice or programs. The other participant group are people who consider themselves overweight or obese and who have already participated in or are currently participating in a weight management program (e.g. weight watchers, meal replacements, on line programs etc.) or would like to.

What will you ask me to do?

Your participation will involve providing information on your experiences with weight management with specific reference to what you believe should be assessed in designing effective weight management programs, what you believe assists or optimises weight loss outcomes, what you believe are the barriers to effective long-term weight loss and the solutions to effective weight management. Interviews may be videoed or audio-taped, with your permission, to ensure the integrity of the information transcribed into the computer package used to identify themes that emerge through in the interviews. The interviews can be conducted without the use of a video or audiotape, if you are uncomfortable with either of these devices.

Are there any risks for me in taking part?

The research team does not believe there are any significant risks for professionals or people with weight issues who choose to participate in this research. However, while the research team does not believe you are at significant risk it is acknowledged that discussing weight is a sensitive issue for some people. Similarly, some professionals may feel uncomfortable discussing instances when they have not met the expectations of clients. Strategies are in place to manage the risk of becoming upset and full details will be provided should you choose to participate. It should be noted that if you do agree to participate, you can withdraw from participation at any time during the project without comment or penalty.

Are there any benefits for me in taking part?

If you are a professional working with weight management, it is expected that this project will benefit you directly by providing a platform to discuss your practice including the challenges you currently experience and your ideas for providing more effective services. Participants who are part of the overweight subgroup are likely to benefit from being able to discuss your weight management issues. Your feedback will ensure that the assessment instrument that is developed is representative of the needs of the audience it is intended for.

I am interested – what should I do next?

If you would like to participate in this study, please contact Anita Cochrane on 0419 560 059 or a.cochrane@student.qut.edu.au. *You will be provided with further information to ensure that your decision and consent to participate is fully informed*.

Thank You!
QUT Approval Number: 1000000514

Appendix C: Participant Consent

PARTICIPANT INFORMATION for QUT RESEARCH PROJECT

A Multi-Component Approach to Obesity Management (client & practitioner)

Research Team Contacts

Anita Cochrane — Chief Investigator
QUT — IHBI
0419 560 059
a.cochrane@student.qut.edu.au

Andrew Hills — Primary Supervisor
QUT — IHBI
3138 6087
a.hills@qut.edu.au

Description

This project is being undertaken as part of a PhD project for Anita Cochrane. The project is funded by QUT. The purpose of this project is to develop a multi-component or a multi-disciplinary (e.g. GP, dietitian, psychologist, exercise specialist, complimentary medicine practitioner, and nurse) assessment for overweight and obesity that will enable interventions to be tailored to the individual's needs and conditions. The current research will not include implementation of the tool that is developed. The research team requests your assistance because we believe it is important to inform our research practice with the experience and knowledge of practitioners in the field as well as the overweight people they treat to ensure the tool that is developed is practical and representative of practitioners' needs and the needs of their clients.

Participation

Your participation in this project is voluntary. If you do agree to participate, you can withdraw from participation at any time during the project without comment or penalty. To withdraw you simply need to inform any member of the research team by email, mail or telephone. A withdrawal form can be found at the end of this form.

Your participation will initially involve an interview that will be conducted at QUT, DietPsyche or other agreed location, and will take approximately .75 – 1.5 hours. Questions will include reference to weight management, for example, "What do you believe needs to be considered in assessing people who are overweight and obese to facilitate the design of more effective weight management programs that ensure long term maintenance of weight loss as well as improved health? What do you believe are the major barriers to weight loss?", "What do you believe could improve weight loss programs or enhance weight loss outcomes?" The information will be used to identify what factors need to be assessed in designing interventions for effective weight management. You will not be asked to identify any specific people in your response.

This project is independent of DietPsyche, LifePsyche or any other private service so your involvement with the project in no way affects any present or future treatment provided by DietPsyche or LifePsyche or any other service.

Expected benefits

It is expected that this project will benefit anyone involved because it will provide a platform for you to explore your concerns and understanding of the management of overweight and obesity and factors contributing to it and how you could manage it. You may also wish to be involved in the later pilot testing of this instrument and in so doing develop a more effective framework or process for managing clients who are overweight or obese.

Risks

There are no risks beyond normal day-to-day living associated with your participation in this project. However, it is acknowledged that some people are sensitive about their weight and their inability to lose it and may become upset while discussing their weight-related issues. Similarly, some practitioners may experience discomfort when discussing instances when they have not met the expectations of their clients. QUT provides for limited free counselling for research participants of QUT projects, who may experience discomfort or distress as a result of their participation in the research. Should you wish to access this service please contact the Clinic Receptionist of the QUT Psychology Clinic on 3138 0999. Please indicate to the receptionist that you are a research participant.

Confidentiality

All comments and responses will be treated confidentially and will be made anonymous when transcribed. Information generated during interviews will be stored in a software package called nVivo. Interviews may be audio/video recorded as a backup to ensure the integrity of information stored in nVivo. Only members of the research team and people employed to transcribe will have access to this material, and the material will only be used for research purposes. These recordings will be destroyed after material in nVivo is verified and finalized. However, it is possible to participate in the project without being recorded.

Consent to Participate

We would like to ask you to sign a written consent form (enclosed) to confirm your agreement to participate.

Questions / further information about the project

Please contact the research team members if you have any questions or if you require further information about the project.

Concerns / complaints regarding the conduct of the project

QUT is committed to researcher integrity and the ethical conduct of research projects. However, if you do have any concerns or complaints about the ethical conduct of the project you may contact the QUT Research Ethics Officer on +61 7 3138 5123 or email ethicscontact@qut.edu.au. The Research Ethics Officer is not connected with the research project and can facilitate a resolution to your concern in an impartial manner.

CONSENT FORM for QUT RESEARCH PROJECT

A Multi-Component Approach to Obesity Management (client & practitioner)	
Research Team Contacts	
Anita Cochrane — Chief Investigator QUT — IHBI 0419 560 059 a.cochrane@student.qut.edu.au	Andrew Hills — Primary Supervisor QUT — IHBI 3138 6087 a.hills@qut.edu.au

Statement of Consent

By signing below, you are indicating that you:

- have read and understood the information document regarding this project
- have had any questions answered to your satisfaction
- understand that if you have any additional questions you can contact the research team
- understand that you are free to withdraw at any time, without comment or penalty
- understand that you can contact the Research Ethics Officer on +61 7 3138 5123 or email ethicscontact@qut.edu.au if you have concerns about the ethical conduct of the project
- understand that the project may include audio recording
- agree to participate in the project

Name .....

Signature .....

Date ..... / ..... / .....

Video Consent

The interview may include video recording to ensure that all information generated by the interviews can be transcribed for data analysis. By ticking the boxes below you are indicating your willingness to be videoed. Please note that even if you tick the 'yes' box you can still decide at the time of interview not to be interviewed.

☐ Yes, you may videotape my interview

☐ No, I do not wish to be videotaped

Media Release Promotions

From time to time, we may like to promote our research to the general public through, for example, newspaper articles. Would you be willing to be contacted by QUT Media and Communications for possible inclusion in such stories? By ticking this box, it only means you are choosing to be contacted – you can still decide at the time not to be involved in any promotions.

☐ Yes, you may contact me about inclusion in promotions

☐ No, I do not wish to be contacted about inclusion in promotions

***Please return this sheet to the investigator*.**

WITHDRAWAL OF CONSENT FORM FOR QUT RESEARCH PROJECT

A Multi-Component Approach to Obesity Management (client & practitioner)

Research Team Contacts	
Anita Cochrane — Chief Investigator QUT — IHBI 0419 560 059 a.cochrane@student.qut.edu.au	Andrew Hills —Supervisor QUT — IHBI 3138 6087 a.hills@qut.edu.au

I hereby wish to WITHDRAW my consent to participate in the research project named above.

I understand that this withdrawal WILL NOT jeopardise my relationship with Queensland University of Technology.

Name .....

Signature .....

Date ..... / ..... / .....

Appendix D: Convergent Interviewing Procedure

Interviews are the most common strategy used to gain a solid understanding of people's opinions regarding certain issues in action research (Liamputtong, 2009). Convergent interviewing (Dick, 1990) was chosen as the initial method for data collection in the current research. The procedure, as outlined by Dick, is detailed below.

1 Establish a Research Group

A research group consisting of three supervisors was established. One of the supervisors was an expert in obesity, one in the behavioural management of obesity, and the other in action research methodologies and team effectiveness. The methodology supervisor was Bob Dick, the originator of convergent interviewing and a prolific writer in action research. During the initial meeting on 15.06.10 it was decided for expediency not to form a representative steering committee of stakeholders but to use the research group as a working party to help clarify and decide on methodologies. Action research was chosen due to its practised philosophy of participation and equity. At this meeting it was confirmed that a stakeholder analysis (Dick, 1990) would be used to identify the most representative stakeholders to interview after ethics clearance was finalised.

2 Define the information

The open-ended approach inherent in convergent interviewing addresses two regrets in data collection. The first is realising questions that should have been asked after data collection. The second is realising the wrong questions were asked.

Dick (1990) suggests two strategies to generate a clear statement of intent prior to performing qualitative research. They are listed below.

- "Suppose the overall program were already complete, and had far surpassed your expectations. What visible and tangible results would you expect to have obtained?" (Dick, 1990, p. 20).

To direct the focus for the research, this question was answered from a researcher's perspective. The responses are listed below.

- The assessment instrument/approach would be adopted globally by weight management practitioners because it was considered a best practice model.

- Governments would recognise its legitimacy and offer a Medicare rebate for those who use it.
- Clients would report being more satisfied with the way the assessment/approach tailored the weight management program to their needs and educated them.
- Clients who use the system would report permanent weight loss, improved medical and psychological outcomes, improved fitness, strength, and flexibility.
    - "You may recall the Delphic oracle of Greek mythology. You were allowed to ask it just one question, which it would truthfully answer. If the question were at all ambiguous, however, it would give you an ambiguous answer. Now, you may ask just one question of the Delphic oracle. What question are you going to ask?" (Dick, 1990, p. 20).

As the initial stage of the convergent interviewing process required only the questions that are required to define the next step. The initial responses are listed below.

- What do you believe are the keys to permanent weight loss?
- What do you believe are the necessary components of a weight management assessment that will facilitate the design of an intervention that will optimise permanent weight loss?

To further refine the question, questions specifically relevant to practitioners as opposed to clients, were considered and included. They are also listed below.

- "What is relevant in developing the best possible weight management assessment tool?"
- "What are the most pressing issues facing obesity assessment and treatment?"
- "Tell me what issues you face in assessing and treating obesity?"
- "Tell me what is good and what's not so good about the current methods of obesity assessment and treatment?"
- "What's it like working with obesity management?"

Questions relevant to potential clients were also considered.

- "What are your barriers to permanent weight loss? What do you believe are solutions to the barriers that prevent you losing weight permanently?"
- "Why did you gain weight and why can't you lose it?"
- "What do you believe a weight management assessment tool would need to include if it were able to design an effective weight management program for you?"

The research group did consider posing a general question such as, "What are your experiences with weight management?", but believed the information would be too generic to expediently provide data for the research question. The consensus within the research group was to ask a question that encapsulated what the service providers believed needed to be included in the assessment, and what the users thought needed to be assessed to optimize action and outcomes. This question became: "What do you believe needs to be included in a weight management assessment to optimize outcomes/ensure success?" Responses to this question were designed to answer the global research question of: "How can a MCMD assessment for obesity management be developed that is responsive to the needs of the individual seeking treatment and the professionals using the tool?"

3 Define the target population, the stakeholders

There are some marked differences between positivist research and qualitative research. For example, positivist research chooses the sample size and sample before data collection begins; convergent interviewing allows the data to decide the sample size (Dick, 1990). Positivist research samples subjects randomly whereas qualitative research samples participants in a purposeful way (Patton, 1990). Each interviewee must be representative of the research and at the time they are interviewed be as representative of the research data being sourced as possible. This means that each person needs to be as representative as possible for the size of the sample. Patton (1990) defines the activity of choosing information-rich cases that can illuminate the question as purposeful sampling.

A stakeholder analysis process was utilised to define the target population. This commenced by posing the following questions, proposed by Dick (1990), to the research working party: "Who would be interested in the answers to the question(s)

posed?" and "Assume you successfully achieved your outcome. Who would be affected by what you achieved?" Responses indicated the following groups would be potentially relevant to a stakeholder analysis:

- obesity researchers in exercise science, psychology, medicine, nursing, nutrition and dietetics, complementary medicine, public health, epidemiology, or policy;
- weight management service providers including,
    - registered professionals such as doctors, psychologists, exercise physiologists, occupational therapists, podiatrists, physiotherapists, dietitians, nurses, social workers, counsellors, and alternate health professionals such as naturopaths and homeopaths
    - non-registered professionals such as nutritionists and personal trainers
    - gyms
    - weight management groups such as Weight Watchers and Jenny Craig
    - web-based weight management companies such as Spark People and the Biggest Loser;
- people who want to lose weight;
- people who want other people to lose weight;
- professional bodies such as the Dietetic Association of Australia, the Australian Psychological Society and the Australian Medical Association; and
- government bodies such as the Health Department, the NH&MRC, and health policy teams working with obesity.

4 Choose the Sample

Convergent interviewing focuses on interviewing people who have the relevant subject knowledge for the research and who are as different to each other as possible (Jepsen & Rodwell, 2008). Step 3 clearly indicated that the research would be interdisciplinary. Interdisciplinary research facilitates multiple perspectives and a richer understanding of obesity assessment across the disciplines (Driedger et al., 2006). The first step in choosing the sample was to decide on who was the "most representative" of the population. This person was the first to be interviewed. Another

person, who is also representative of the target population, but in other respects unlike the first person, would be the next person to be interviewed. The next person to be interviewed would also be the next most representative member of the target population, but unlike the first two, and so on.

The research working party collaborated to identify a diverse and highly representative sample of stakeholders. The sample is outlined in the body of the text (refer to Section 3.2.5).

5 Inform the stakeholders

To promote openness and transparency of intent and purpose in relation to the interviews, interviewees were informed about the process and the goals as per the ethical requirements of QUT. This included information relating to:

- the purpose and description of the research;
- participation;
- confidentiality;
- research funding;
- questions to be posed;
- the risks and benefits of participation; and
- fate of the data collected.

Each participant was provided with an information form at the time of recruitment (see Appendix B) and a consent form (see Appendix C) at the time of interview.

6 Plan the interview

There are two parts to planning the interview, the opening question and probe questions. The opening question is a "content-free" question that does not *predetermine the answer. In the case of this research that question was defined as: "What do you believe needs to be included in a weight management assessment to optimize outcomes/ensure success?"*

Probe questions are used after the initial open-ended questions to generate more specific answers. Probe questions clarify uncertainties and confirm agreements having risen from earlier interviews.

7 Conduct the interviews

Since Dick (1990) developed convergent interviewing there have been two key deviations (Driedger et al., 2006). The first is that interviews are not always conducted in pairs, usually due to limited resources (Riege & Nair, 2004) as is the case with the current PhD research. The second issue was in relation to divergent information. Dick (1990) originally proposed a focus on convergence, which involved discarding divergent information. Since then, others (Rao & Perry, 2003; Riege & Nair, 2004) have argued for inclusion of divergent data as probe questions. In the current research, since very few of the interviewees came from similar fields, the amount of valid divergent information was high and therefore the decision as to whether this information will be included or not will depend on triangulation with the literature review and observational data. This modification is still faithful to Dick's objective of using dialectical processes to challenge interpretations of the data gathered (Driedger et al., 2006). Both deviations are also consistent with Dick's philosophy that, as an action research methodology, convergent interviewing must be flexible and responsive to the prevailing situation.

The interviews followed an established and expected process of establishing rapport by introducing myself, outlining the purpose of the interview, reinforcing confidentiality and information management caveats, and answering any questions raised by the interviewees. To commence the actual interview, the single broad question was posed and the interviewee was encouraged to speak for as long as possible, with minimal encouragers. As the interviews progressed, probe questions were asked to prolong the interviews and to confirm or disconfirm themes identified in other interviews. When no more new or relevant information was forthcoming or the interviewee ran out of things to discuss, the interview was closed.

As the interviews progressed, pairs of interviews were compared to identify and compare emerging themes. Themes that reflected agreement were presented in ensuing interviews to identify disconfirming views. Themes that reflected disagreement were explored in later interviews so that explanations for disparate opinions could be examined. Depending on the interviewee, there were limitations to which probe questions could be asked of particular interviewees. For example, it was redundant to ask medical questions to non-medical interviewees.

While the content was unstructured, the process was tightly structured. The information was systematically analysed with only relevant information from earlier stages carried into ensuing interviews. The systematic approach extended to sampling, data collection, and particularly, interpretation. This helped to improve efficiency and reduce bias.

8 Recording Information

Although Dick (1990) initially recommended a self-designed memory system for recording data from interviews, later researchers (Driedger et al., 2006) have recommended taping and transcription to facilitate detailed analysis. Accordingly, an MP3 player was used to record the interviews. In order to respect the concern of those sensitive to being taped, a conscious effort was made to establish rapport at the commencement of the interview. The MP3 recordings were then transcribed verbatim by an independent and experienced English-speaking transcriber. The recordings were stored in a virtual cloud on a safe site, as well as on a hard drive at the university. In the event that the recordings did not work, permission was requested to type the interview as it occurred. This typed transcript assisted the American transcriber in checking certain words or intonations. The transcriber indicated that she referred to the typed notes on several occasions to clarify words. On one occasion, a recording did not work and the typed notes were used.

Appendix E: Free Nodes Generated by First Convergent Interview (DN)

Free node (parent)	Child node
Practitioner barriers	**Time constraints** "The doctor won't use anything that is not fast." **Assuming client readiness** "When you go to a GP you are usually not well. You are not ready to attack lifestyle issues." **Practitioners don't focus on the person** "(Consultations) should be focused on the particular issues that face the person." **Telling not helping** "It is about telling people what to do rather than helping them to make the changes they need to make." **Inadequate training** "I don't think health professionals have enough repertoires. If you take a dietetics course you would be lucky to get one week training on obesity."
Attitudes about approaches	**Transtheoretical model** "Dietitians are keen on the transtheoretical model of Prochaska. My personal view is that it is junk. It has no relevance to food and nutrition." **Three factor eating scale.** "We looked for restrained versus unrestrained eaters. We saw no relationship among any of those scales and any type of weight loss or adherence." **Motivational interviewing** "I don't think that doing motivational interviewing makes a difference. Having the motivation to do stuff is not the issue. People seem to be able to get started. It is about keeping going long term. And, the barriers seem significant."
Attitude about Disciplines	**Dietitians** "You don't need to ask people if they use more than 1 tablespoon of fat a day. Some idiot dietitian I presume has done that. I think we need to recognize that dietitians are not the only people who can help. In fact, they have been unsuccessful because of their very narrow approach." **Doctors** "I don't think GPs have any skills on telling people tips on what they could do with their food. I think it is a waste of time to get GPs to do this. I think a GP's job is to identify who needs help." **Psychologist** "You would only disclose certain stuff to a psychologist. No one would tell an unknown person that they are a binge eater or binge drinker. The assessment tool has to be smart enough to lead you to the counsellor." **Exercise physiologist** "I am not sure about ex phys. I think they are not broad enough. The guys setting up the GP superclinics are saying that they don't know how exercise physiologists fit because they say it is too narrow." **Physiotherapist** "Physiotherapists argue that they can do all that (everything an exercise physiologist would do) but can do things in active disease as well as a variety of other components. So there is some tension (between physiotherapists and exercise physiologists)."
Unhelpful approaches/ barriers to obesity management	**Blaming the client** "The idea of, 'It's your fault', is not particularly helpful. We need to move away from labelling them as a victim and saying, 'You are only lazy and a slob and are in the wrong stage of change. All you need to do is to get motivated and change your stage of change.' That has never worked." **Using an energy in, energy out analogy** "It is too simplistic to say, 'Eat less; move more.' It is an unwinnable message. It depends on your lifestyle." **Taking a dietary history** "I would also never take a diet history. Diet histories were great when everyone ate a very standard type of meal."

	Assuming one size fits all "There should be a way of assessing people so that you can target an intervention that is right. I do not believe that one size fits all is correct." **Depending on health promotion strategies** "Public health messages don't work at all. Dietary guidelines are supposedly exhorting people to maintain their weight or monitor or manage their weight, but over the years it has been completely unsuccessful. Nothing has worked. We have got worse. Telling people to cut down fat and eat more vegetables is an absolute waste of time. The DAA consumer research said people were sick to death of being told to eat more vegetables."
Helpful approaches	**Start with open ended questions** "I would be inclined as an opening gambit to saying 'What brings you here today? How do you think I can help you? What is it that you want?" Trying to elicit some of those goals. The problem with this is it takes a lot of time and it is less structured." **Stage the assessment** "A 3-tiered staged approach a) self-assessment b) triage assessment c) specialist assessment Your assessment needs to sort them correctly. So, if people eat too much because they are depressed and they are depressed because they are overweight that cycle needs to be seen by a psychology counsellor, not be hammered about their diet which will increase their depression etc." **Obesity treatment** "If you have a BMI >35, best practice is surgery. In fact for 27+ comorbidity it is bariatric surgery" **Overweight treatment** "Overweight is probably more manageable if you halt the progression from overweight to obesity. You would save huge amounts. Once you are really obese the person is difficult to work with." **Develop a relationship/rapport** "You need to get into a partnership system with the client and get negotiated goals and strategies." **Prioritise needs** "It should be one thing after the other. I think that if people have multiple lifestyle things you should prioritise what you address." **Establish cause** "Overweight and obesity appear to be an inexorable result of wealth and development." **Get on top of behaviour first, improve diet later** "I don't see diet as so urgent. You have to get on top of the lifestyle issues then change one thing at a time." **Match intervention to person** "It needs to be tailored advice. What they (the client) want to do first is where I would start in terms of tailoring it." **Behavioural solutions** "The whole issue is, "How do you make significant lifestyle changes?" "How do you walk past them (Tim Tams)? How do you limit yourself (in an obesogenic environment)?" **Look at the environment** "You need to think of environmental issues so you need to think of what it is about where you live that mitigates against activity." **Self-management** "The public health approach fails because it does not engage at all with the public. (What works is) that public health self-management approach where you actually engage with the client. You have a therapeutic relationship, but the client has ownership. The client is generating the suggestions." **Case management** "If you take the integrated mental health model it probably doesn't matter who the case manager is. One (practitioner) takes responsibility for a case, so the client only

	deals with one person but has a cluster of expertise. The team case conferences away from the client."
Limitations of MCMD approaches	**Fragmenting care** "There is some evidence that particular groups only like to work with one person and that the concept of having multiple practitioners compartmentalizing the care is not appropriate. That is, you would go to see a dietitian for food, an exercise physiologist for exercise prescription. In combining it in a more easy way I guess the issue is how to get something that would either target an intervention which is actually of value to people or targets how to get the health professional team to work correctly, to get it right. So, you know there may be people who don't mind seeing 10 professionals and there may be some people who would find it overwhelming and would rather have one person, like a case manager. I would not be constrained by what operates now, because what we are doing is not working. I don't think people should be too compartmentalized. I don't think it is helpful if you go to the dietitian to talk about your depression, to the dietitian to talk about your food. I think you need someone who manages the care and has an interest in the primary issue e.g. if it is mental health issue use a psychologist as case mgr. Whatever the issue is send them to the appropriate person." **Not a seamless service** "Where there have been a lot of resources is often the public hospitals that run ambulatory services. But, what happens is that the practitioners get used to dealing with a particular clientele and when they get a different clientele they can't adapt. Many practitioners don't have the opportunity of sharing their strategies. Where there is a cluster of practitioners they are in different worlds because they are funded by different entities. There are people in the public sector who don't refer to the private sector. They do these assessments but they don't target well. They don't use the other structures present in the private sector to support them. It's not seamless. People talk about seamless continuity of care but in reality that doesn't exist." **Funding** "And the biggest barrier (for specific programs) was the funding model. You have to have a different funding model to get yours to work." **Engaging professional** "We tried training the doctors. Five or six signed up, but didn't turn up. We couldn't get any engagement. We then went to the practice nurses. We ran extensive in-services with practice nurses, but the nurses didn't understand even the simplest stuff." **Professional attitudes** "We did a survey of dietitians in general practice and private practice to see what they thought the GP could do about weight and nutrition generally. Dietitians have a very narrow view. While they say GPs have a role they say, "You should refer to me." **Most professionals are overweight** "The problem for weight management is that most allied health professionals are overweight themselves, including people like me. It is very difficult when they are just as much a part of the problem as anyone else. One of our dominant professions has incredible levels of overweight and obesity. Nursing. So, using nursing as the triage grouping may or may not be effective."

Appendix F: Client-Related Free Nodes Generated by Second Convergent Interview (C1)

Free node (parent)	Child node
Weight loss barriers	**Emotional eating** "I think when things are going bad in my life or not so good, I hit the fridge or I comfort eat. I think it's linked to well-being and self-esteem. I think you have to get over that hurdle to move into losing the weight." **Hunger** "I'm walking around opening up the fridge, I'm closing the fridge. You know, I'm having another cup of tea. I'm still ravenous, and I'm still incredibly hungry." **Craving** "The hunger is just craving; like people have cravings for heroin." **Reward** "I think I'd go buy a Snickers bar or something because I've had a really bad day, and that would cheer me up. I deserve a Tim Tam." **Procrastination/Deferral** "You don't think and if you do think about the consequences, you say "Look, I'll deal with it later." **Lying** "I think it is really easy to lie. They ask you, "How much do you eat?" It's like asking an alcoholic how much beer they have in a week." **Portion size** "My portions are too big." **Self-sabotage** "I think it's (the weight gain) really self-destructive. It's almost like, 'Ha! Ha! I'm going to get fat and so there.' And the only person you're really hurting is you because the next minute you find you can't get into your clothes. You look at yourself in the mirror in disgust. It's a vicious cycle." **Self-talk & thinking patterns** "It's just like I'm standing aside and listening to these two voices in my head saying, 'I'm still very hungry. Just have another one. You know it's okay.' And the other voice says, 'No, no, no! But, you agreed last night you weren't going to have….' I just indulge myself. It's that self-talk again where you say, 'I deserve it.'" **Unconscious elements** "I think there is an unconscious element to eating. I think I eat unconsciously. I would say I don't eat very much. But I think I have to." **Lack of support** "(A Jenny Craig counsellor gave) no support, no strategies, nothing. And, I don't think she understood the fact that I was discouraged. I haven't been back."
Weight loss strategies (client)	**Self-loathing as motivation** "Your self-loathing gets so large it motivates you to action." **Practise mindfulness** "I think it's about being mindful. It's becoming conscious of how much you're actually eating." **Honesty** "I think that somehow if you can get into that lie factor and get real. Stop lying. Be real about how much you're really eating."
Weight loss strategies (practitioner)	**Non-judgement, active listening** "I just want somebody to sit there and listen and not be judgmental and take the time to really listen." **Understanding, empathy, kindness (develop rapport/relationship)** "You just need that encouragement and understanding and empathy and kindness." **Respect** "I'd like him (practitioner) to be friendly. I'd like him to treat me as an individual, not just someone in a sausage factory. That I'm important to him.

	That what I'm going through is important. And, that he values me as a human being." **Explore psychological factors (open ended questioning)** "I think the psychological is something that's really missing. What's going on in your life that may impact on the reasons why you are comfort eating or redirecting your frustration into food? What I'm going to do about them? What is happening in my head?" **Find out what motivates client** "What is motivating you to lose weight? And, how important are these motivations to you? Is it vanity, is it self-esteem?" **Assessing Support System** "Do you have a support system around you? Can you get a support system?" **Match intervention to person** "I don't want to be a sausage factory. I want an individual program that suits me, my needs, my motivations, my issues." **Support & encouragement to keep going** "What I really needed to hear her say is, "You know, this is your first week. Don't give up."
Practitioner issues	**Doctor** "I wouldn't go to the doctor for my weight because I don't think that he's an expert. I think that they're too busy. I don't think that it's their field." **Psychologist** "I could talk to a psychologist, but probably a dietitian." **Dietitian** "I think a dietitian is a specialist in that field. If I had a choice, I'd go to a dietitian." **Exercise physiologist** "I wouldn't want to go to an exercise physiologist." **Jenny Craig Counsellor** "No support, no strategies, nothing. She was very young. She was losing weight. I haven't been back." **Parental, judgemental approaches** "I don't want them to be judgmental. I don't want them to be a parent…a parental kind of like tsk, tsk, tsk. "Oh no, that was naughty." **Friends** "I just manage it (weight loss) on my own at the moment, which is not efficient. I would probably go to friends. I would talk about it with a couple of girlfriends who are overweight."

Appendix G: Dissatisfaction With Current Obesity Approaches

Representative Stakeholder Comments

Dietitian-Nutritionist (DN)

- "Public health messages don't work. Nothing has worked. We have got worse. Consumer research says people are sick to death of being told to eat more vegetables."
- "I do not believe that one size fits all is correct."

Family Doctor (DR1)

- "I don't think that our current interventions are actually doing anything. Our diets are up the creek and the pyramid is all wrong."

Private Practice Psychologist (PP)

- "I am successful with people who aren't after the quick fix**.** The big ones I've had no success with at all. Only surgery has dramatic weight losses."

Client (C2)

- "I've tried everything. If anything was going to work, it would have."

Research Psychologist (PR)

- "I don't think you can just target obesity from one angle and expect it all to work."

Complementary Medicine Educator - a naturopath (CM)

- "There is no simple answer."

Endocrinologist (DR2)

- "Patients don't have any interest in losing weight in the main. We've all got buckets of patients who've tried it and it hasn't worked. Obesity clinics around the globe tell you the same story."
- "Bariatric surgery works because it doesn't give the individual any choice."
- "If you look at the long term intervention studies with aggressive lifestyle modification, within a year everybody has reverted to the norm."

Health Epidemiologist (HEp)

- "There's the individual level and the population level. We can be quite effective at the individual level, particularly if you choose men and you choose engineers. But at the population level, I'm a total failure and everybody else in the world is too."

Community Health Nurses (N2).

- "I just feel that we are missing the boat somewhere. We're continually doing our own research into the area, but there's such a massive body of work and it's so conflicting."

Exercise Scientist (ES)

- "What frustrates me is that I know many people who are able to maintain their weight but I know more people who regain it and they'll tell me why they've regained it."

Medical educationalist (MEd)

Practitioner barriers precluding better client weight loss outcomes:

- "Clinicians have a solo mentality."
- "GP sets the treatment plan, tell the patient what to do and the patient never comes back."
- "There is a mismatch between clinicians and where the patients are on their journey. The clinicians shoot for a level of adherence the patient is not ready for."

Appendix H: Observational Data, Reflections and Field Notes

H1 MD meetings – observations, field notes and reflections

H1.1 Mental Health Professionals Network for Eating Disorders:

I attended an inaugural Collaborative Mental Health Care Workshop for Southside practitioners interested in working with people with eating disorders on 21.06.10. The initiative was launched by the Mental Health Professional Network and Australian Psychological Society. Attendees were remunerated $150 and professional development points for their attendance and provided with a two course meal. Eighteen people attended drawn from disciplines including psychology, dietetics, general medical practice and psychiatry attended. All attendees were female. The meeting focused on networking, teambuilding and planning for future meetings.

The subsequent meeting (02.08.10) did not offer remuneration or a two course meal. It was held at a local bowls club. Only four people attended. The attendees included: two psychologists, a dietitian and the social worker who facilitated. The refreshments included a tray of sandwiches and a large tray of cakes. Three of the four participants ate more than two cakes each. The medical doctor who was scheduled to speak failed to attend and did not forward an apology. We participated in a pre-prepared contingency task, a case study. The case study was of a depressed male anorexic that had low levels of social support and abused amphetamines. As soon as the case study was completed everyone expressed a desire to leave. Prior to leaving the facilitator filled out the paperwork that was required so she did not have to complete it at home.

My reflections: The case study was unrealistic, not at all typical of someone we would see in practice. The presenting issue was predominantly psychological and more biased towards a mental health professional. The predetermined questions focused around the Medicare framework for referring to a GP. As there were no GPs at the meeting, the usefulness of the process was substantially weakened. Notwithstanding it was an opportunity to work collaboratively with other professionals and the meeting triggered discussion of points we would otherwise not have considered. I learned about a meeting on eating disorders held for dietitians and one for multiple disciplines (both discussed below).

The meeting felt perfunctory. There was a sense of "tick and flick" to meet the administrative requirements for the MHPN network administrators. While the

networking opportunity was useful I did not achieve any professional development outcomes from the meeting. The provision of cakes appeared to be out of value-alignment with the purpose of the group. We ask clients not to eat cakes, but most of the participants ate more than one of the cakes.

To my knowledge only one further event was held that I was unable to attend. It is my understanding that attendance was poor and this MHPN chapter was subsumed into a larger metropolitan-based eating disorder group. I attended one of these latter MD networking groups on 27.7.11. The format had changed to a breakfast meeting offering two speakers. The attendance was excellent. While the meetings offered networking opportunities and professional development, it did not have a structure that facilitated formal opportunities to work together in a MD way or activate and channel the professional and social influence of the group to the broader community. They were mainly presentations of an individual's research, and in some cases, their practice.

H1.2 Eating Disorder Interest Group Meeting for Dietitians:

On 04.05.10 I attended an established meeting held for dietitians interested in eating disorders. Including myself, there were four dietitians. One participant endeavoured to bring forward a discussion around a position statement for dietitians in the treatment of eating disorders that delineated the boundary roles of dietitians and psychologists. The members referenced this position statement to one that the Dietitians Association of Australia has on the role boundaries between dietitians and exercise scientists.

My reflection: The meeting was conducted without an agenda and no process. The lack of structure within the meeting precluded any outcome being achieved.

H1.3 MD meeting for practitioners working with eating disorders:

Immediately after the dietitians meeting on 04.05.10, a MD meeting for professionals working with eating disorders was conducted (6.30- 8.30pm). Both meetings were held at a facility with a unit for eating disorders. There were about 14 people present - two psychiatrists, one social worker, six psychologists, and six dietitians. An AGM was conducted and all office bearers were reshuffled around the staff of the clinic at which the meeting was held because no one else wanted the roles. Case studies were conducted in relation to eating disorders and comorbid borderline personality disorders. Only staff at the clinic provided case studies.

My reflections: The clinic staff monopolised the discussion, all having knowledge of the cases. The case studies were not appropriate to dietitians and no explanation of the mental health comorbidities was provided. There was no effort to use language that everyone present could understand. No participatory processes were employed to include everyone present, and participants external to the clinic did not speak up. I learned nothing. No evaluation was performed to establish group or individual learning or how what was discussed could be applied or generalised. The meeting was more a case conference for clinic members. I did not attend further meetings but was slotted in to give a talk to the group without being consulted in relation to the date or topic. I was unable to attend. This experience further highlighted the non-consultative nature of the meeting.

H1.4 Research Colleague Meeting (30.11.10).

I invited my research colleagues (Ph.D. candidates, my primary supervisor and one of his colleagues) to a meeting to give me feedback on their thoughts regarding a MCMD approach. The two most experienced practitioners, my supervisor and his colleague provided the most feedback. The suggestions included:

- Get historical plus current information in relation to physical activity to identify if current "couch potatoes," "once were warriors."
- When was the weight gained?
- What undermined weight loss attempts? For example, "fear factors such as a fear my partner will leave me."
- Determine if the barriers are:
    - Psychological
    - Physical
    - Medical
    - Nutritional
    - Motivational
- Ask the person, "Are you prepared to make change? What is the likely success of actually moving you into diet and exercise without being undermined by psychological baggage"? It was queried if a psychologist should conduct the first interview because they are trained to pick up on the emotional blockages and barriers.

- An efficient "standardised" screening procedure was considered essential and it was suggested that someone be trained to do this. It was suggested that online questionnaires may be appropriate. Completion of these questionnaires, it was suggested could indicate motivation to do the program. Someone mentioned that it has been found in research that if people won't participate in the recruitment they won't do the study.
- A non-negotiable rule should be that the sedentary and the obese must go to the doctor first for medical clearance.
- Evaluation was considered important and "cost effectiveness will sell it."
- Incentives may work such as paying charges "up front" and being given some of this back contingent on weight loss.
- "Be tough." Suggest asking the client to give 3 changes. For example, if the client can't find one hour for activity then what is the point of proceeding because their success will be low. The exercise scientist (ES) I interviewed always gave clients one week to think about the program before agreeing to work with them. She wanted them to be prepared for the changes they intended to make. Emphasise to the client that there is no point doing an assessment unless there is an end point.
- Identify energy dense foods they are prepared to give up and ask them if they will they give them up?
- Screen for "people who get off on the idea of losing weight but then don't put it into action."

H1.5 MHPN Meeting – facilitated an evening on discussing a MCMD approach to obesity management (2.11.11).

I was invited to speak at a Mental Health Professional Network meeting on my PhD, so agreed to facilitate a discussion among attendees about their understanding of working with obesity and how they would use a MCMD approach to obesity management. The outcomes I observed are summarised below:

- 30 practitioners attended: all were psychologists except for 3 social workers, 1 GP and 1 disability support worker.
- They all held very disparate views about obesity and a MCMD approach.

- There was no consensus.
- Most of the attendees were overweight, some were obese. I observed only four slim and fit looking people. Three were males, the other a female.
- One of the obese psychologists tried to set up a MD clinic and failed. I spoke to her at a subsequent event and again she told me how her attempt had failed. Notwithstanding she still planned to continue trying to work in obesity management. She did not appear to have any insight into her won obesity.
- One attendee was doing his PhD in obesity, and on observation fulfilled the criteria for morbidly obese. He spoke about the general pessimism in relation to obesity and how it impacted on everyone including researchers.
- When I asked the audience to express what their "pain" was in relation to managing obesity, they did not specifically answer the question and instead elaborated on solutions. They ignored me and continued to focus on solutions.
- One female psychologist said that when an obese client consulted her she looked at underlying issues and didn't treat the obesity (she was obese herself).
- The general focus was for the practitioners present to focus on improving the quality of life for their overweight and obese clients not addressing the client's obesity per se.
- It was obvious that the majority of the audience did not understand or know much about obesity.
- No one mentioned exercise.
- The doctor thought she should do the MD assessment.
- One participant said she wanted the fact that psychologists worked with obesity promoted despite their being no clear evidence that the psychologists present knew how to treat obesity.
- I came away thinking there is no coordinated plan of attack for obesity management and psychologists don't know how they fit in with others. It wasn't what they said, it was what they didn't say – no one mentioned

collaboration, no one mentioned exercise, no one admitted they didn't know what to do but no one said they knew how to effectively treat obesity and no one asked for more training.

- They organisers said it was the most well attended MHPN session they had. Everyone was obviously interested. Snapshots of notes taken from the board are presented next. The first figure are notes taken from the audience when they were asked "What is their pain when treating obese clients?" As can be seen, the responses show how difficult it was for the participants to focus on the "pain of the practitioner." Instead their responses became more solution-focused (see Figure H.1 and H.2).

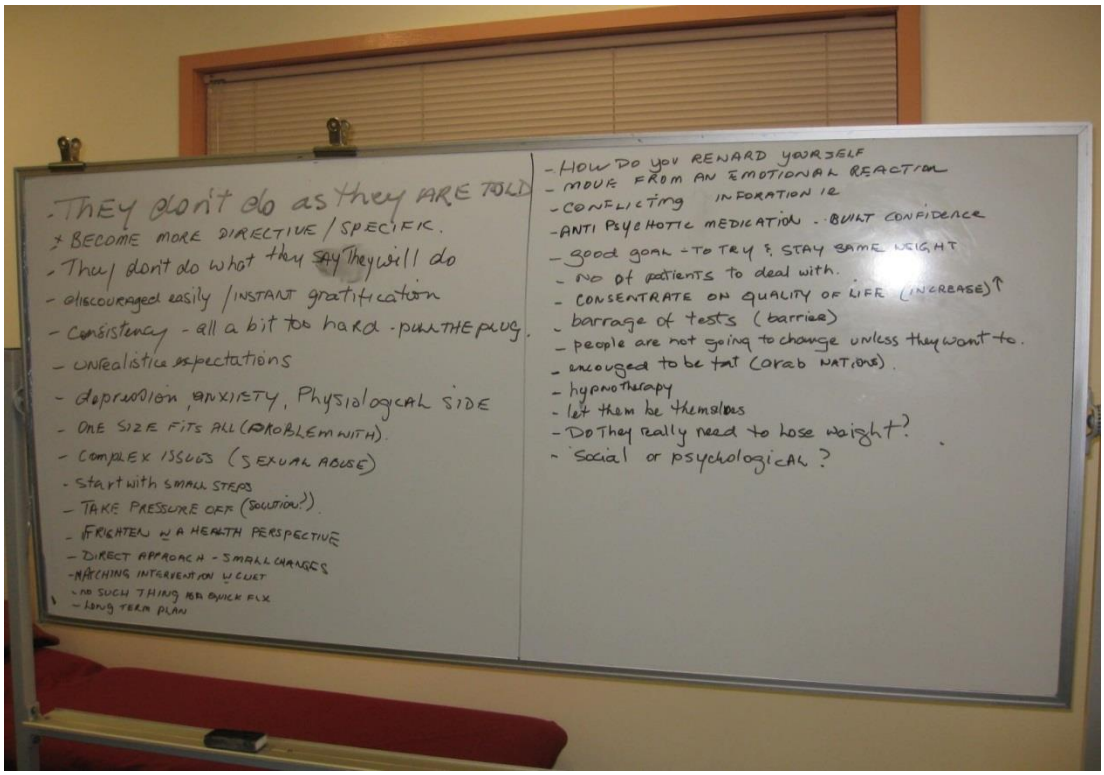

Figure H.1. Practitioner responses to "What is their pain when they treat obesity?"

The next figure outlines issues they have in working with other practitioners, and the barriers when working with a MD approach.

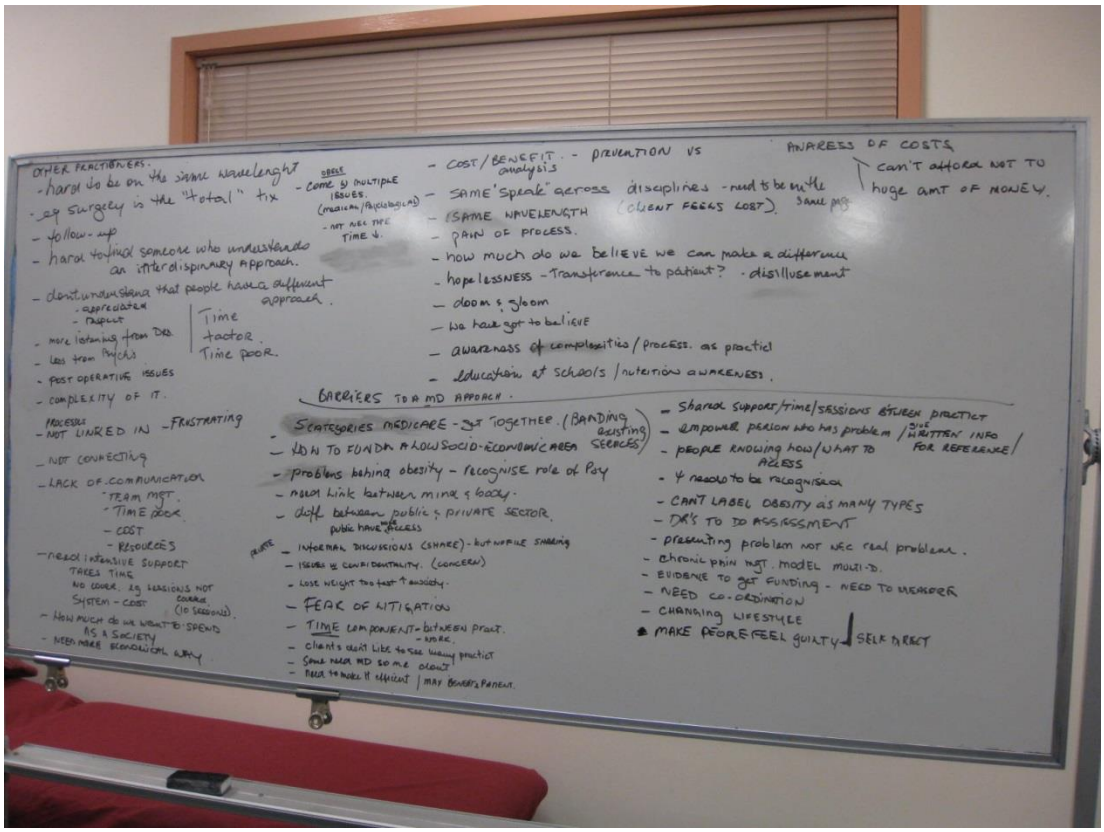

Figure H.2. Practitioners' pain (continued) in working with obesity and challenges and barriers working **in MD teams**

H1.6 MHPN meeting aimed at obesity management (23.11.11).

I was invited to present my research data at this meeting as a way to generate conversation about MCMD approaches. In attendance were 3 GPs, 3 psychologists, one dietitian-psychologist (myself) and one physician who specialised in weight management.

One GP said, "Doctors are drilled in the bio-psychosocial approach." She added that she broached the topic of overweight by asking the patient: "Do you worry about your weight?" She said the responses to questions about weight precipitated comments from the client like, "I don't eat much because I have a big family." She will then say, "What else could it be due to?" She said she regularly asked patients to complete a food diary. The GP also encouraged the client to suggest what changes they could make. This approach is consistent with self-management. This GP said she worked in a well-known multidisciplinary clinic that specialises in mental health issues including eating disorders. She said that the primary management is pharmacological. She termed this management approach as encouraging an external locus of control.

The group agreed that an approach to assisting clients was to:

- change the patient's locus of control
- teach their patients not to come to the doctor for answers
- address hope and expectancy. They emphasised that the expectation of practitioners was also important.
- encourage self-empowerment
- only if the patient loses their way do you "get bossy"

The physician worked as a member of a privately run MD weight management team and mentioned that 40% of the clientele were men. Similar to the comments made by the health epidemiologist in his convergent interview, "males don't think they are overweight, even though they usually need to lose at least 10% of their body weight." He said, "Women were motivated to lose weight to get into a dress." He proposed two considerations in developing a MCMD model: a) Males and females need to be approached differently; and b) Different model for different populations.

H1.7 Peer networking at a university conference (25.11.11)

Nurses I sat with made the following comments about triage and screening.

- Triage is used for prioritisation
- Screening is a head to toe health assessment

H1.8 MHPN Meeting for Obesity (22.02.12)

I was invited to facilitate another discussion on approaches to obesity management at a MHPN meeting. There were 12 professionals present - one dietitian, one GP, one physician, and nine psychologists. The collaborative intention was to define a MCMD approach for obesity.

It was a difficult group to facilitate. Despite being asked to not over-talk one another, the group ignored me. The physician monopolised the floor and was reluctant to give other professionals an opportunity to speak. The GP was the best at coming up with ideas for the initial question to ask clients. Only one member tried to refocus the group, other than myself.

The lack of cohesion within the group and in relation to the task underscored how poorly the disciplines work in a team. They also exhibited a lack of reflective thought on how to manage their clients. No one reported using an established

approach. While attendees knew it was a facilitated evening they did not come prepared with ideas. The meeting I had attended in this chapter of the MHPN suggested a culture of expecting to be "filled up" with information rather than providing it. The only tangible piece of information emerging from the evening was from the GP in relation to open ended questioning and the physician who said that it is better to not diet than to diet and regain weight that is visceral. I came away with a sense of frustration.

H1.9 University Meeting (28.09.12)

A collaborative initiative among various domains of a university met. This meeting was arranged as a forum to generate ideas on how the domains can work together more effectively in the management of chronic disease.

A series was started to get the individuals, and the domains working more effectively towards a common cause. Four individual representatives spoke.

My Reflection: I came away feeling like I did at the other interdisciplinary meetings I had attended where I was gathering research data – I wonder what was achieved and how much further did it take us towards the goal of collaborative endeavour? How did the process used for the forum impact on the outcome?

Initially I thought it was quite well structured. There was a facilitator. He said four representatives from the different domains would speak for five minutes and then it would be open to the floor. Forty minutes later it opened to the floor. The absence of technological support detracted from the deliveries. I couldn't hear the facilitator at the end; the first speaker was foreign and extremely difficult to understand. The second speaker was the clearest. The last spoke too fast and the third one assisted her delivery by having visuals.

There was a tendency for people not to really listen to what someone says. One participant pointed out that work has a big impact and that it needs to be distinguished from lifestyle. He tried to reinforce his point but it got diluted because people focus on lifestyle not work. Yet, our working lives have an enormous impact. Every day I drive to university and think why don't they stagger working hours? We would sit in traffic for less time, have less impact on the roads, and provide people with more time to increase activity. No, we keep doing what we have always done and so get what we have always got.

The next guy, an American, made the pertinent suggestion of IHBI becoming a centre of excellence "for something." Great idea, again not followed up. No one took notes except me!

Because the speakers represented content no one really forced the process issue which is what the session was about – "How to get people working effectively together."

Identified Barriers to working together based on today....

- Shared vision, goal, commitment, passion, ownership
- There was no "what's in it for me" to excite and inspire
- Needed better processes to capture or farm the information from all who attended to meet the goal (e.g. could have provided some feedback sheets for people to hand in with ideas – we heard only from the most confident); needed processes that ensure everyone's contribution
- There were no processes that lead to the next step, e.g. no agendas, no handouts to follow, no action plans to identify 'what next.' It was too loose.
- Only had an hour; no set process or outcome established
- Poor technology (at least need a microphone)
- How do we keep the impetus going?
- So what? What next?
- People don' t listen to each other – For example, who takes the guys contribution about addressing work as a barrier to improving health, anywhere? We keep blindly doing what we do. IHBI has the potential to influence change.
- There is an assumption that it is about sharing knowledge; however, there was no discussion about the process of how to work together
- Human health and wellbeing representative made a valid points:

➢ 49% of global burden of disease is chronic disease

➢ How to navigate people through the health system? There is an individual responsibility – self-management. The speaker believed we needed to focus

on things outside the health system because people spend the majority of time outside the health system. Subsequently, we have active self-management interventions – how to live with the disease. Current evidence of effectiveness of interventions is mixed.

- Lots of self-management programs are applied in a number of settings – telecommunications, e-Health, SMS, virtual delivery, the majority of the interventions need to be outside healthcare because this is where the people are. Interventions range from face to face to multimedia campaigns to group processes. The predominant interventions are: disease specific and generic.
- Need to understand true impact of interventions. Current evidence for interventions is mixed. Can look at group, multi-media, face to face. Generic or specific. Combine biomarkers on specific illnesses. Look at Quality of Life and delay progression. Look at life course approach. Looking at best delivery method.

Audience comments…

- We need to look at the contribution of work patterns (work life balance) on chronic disease (work vs. lifestyle factors). People are sitting all the time. The body is not designed to sit all the time. We have sitting disease. We are sitting 90% of the day. We need to capture if people are employed or not. He said, 2/3 chronic diseases are related to five lifestyle variables. If they didn't exist we would have fewer chronic diseases.
- We are scattered in XYZ not focused. Currently we beaver away at our own disciplines. He says hire a director with a vision
- XYZ won't develop into a centre of excellence with a scattered focus.

H1.10 MHPN OPATS – Talk by a bariatric surgeon (21.11.12)

The bariatric surgeon spoke about his research on sleeves. He titled his talk: "Outcomes for a MD approach to gastric sleeves."

His MD approach involved the patient consulting a psychologist twice before surgery (for screening) and twice after the surgery. The patient consulted the bariatric surgeon on a number of occasions before and after the surgery. They also consulted a

dietitian and participated in a monthly support group attended by a large number of people and facilitated by the psychologist.

While he referred to the MD approach as intensive this was not reflected in the frequency of exposure the patients had to practitioners.

When I asked the surgeon what the psychologist did, he did not know.

The surgeon had no specific criteria for exclusion of patients from surgery. He reported excluding one person, but allowed them into his program at a later date.

He attributed the success of gastric sleeve procedures, as measured by weight loss, to the MD team. However, weight loss is automatic after a gastric sleeve (85% of the stomach is removed) surgery and occurs regardless of the team. .

H2 Health Department MD initiatives – observations, field notes and reflections

H2.1 Community health MD team working with chronic disease.

I attended the meeting of a MD team working in a community health centre on 16.08.10. They were meeting to discuss the development of an obesity management initiative for their clientele. The MD team consisted of the team leader (social worker), two more social workers, and the team administration assistant, two physiotherapists, one of which had dual degree in exercise science, two nurses, one dietitian, a psychologist and a podiatrist.

The reported concerns confronting the MD team in relation to obesity management included:

- The dietitians in community health refuse to see obese clients because they prioritise clients with medical conditions.
- The only program available was for overweight people, not obese people. Notwithstanding, the nurses pointed out that all participants in their program were actually obese, thereby highlighting a gap in their service.
- The physiotherapist said she was being referred obese clients explicitly for the purpose of assisting them with weight management. She said that the referrers were expecting her to remove the pain experienced by these obese clients so they could exercise. However, the physiotherapist did not believe physiotherapy could effectively address pain as a pathway to increasing exercise in this population group.

- The MD group was concerned that current evidence indicated that most people regained the weight they lost.
- There was conflict over whether the team's purpose was prevention or treatment.
- A perceived limitation in managing obesity was that Medicare did not recognise obesity as a chronic disease meaning it was not covered under Medicare unless it existed with a comorbid condition. The psychologist pointed out that to address obesity without comorbidities meant that they would be stepping outside the referral.
- Suggestions for developing an MD approach for obesity management were as follows:

➢ The nurse believed a MD approach where everyone worked together would improve outcomes.

➢ The nurse believed more connection with obese participants was required, as well as health coaching.

➢ The psychologist believed that obesity should be considered as a chronic disease and approached in an ongoing way. He said, "How do you journey with it because it will progress and will have comorbidities, including anxiety and depression? I don't want to just focus on weight loss. If we focus on treatment, we are kidding ourselves. I can't treat it but have skills which will help people journey with it so this will give them an avenue for healthier choices. Even losing a few kilograms is a good outcome."

➢ While concurring with the psychologist, another colleague pointed out that their team would be expected to have outcome measures.

➢ The physiotherapist said, "Mental issues are a big component. There is a reason they don't move, and the same applies to why they don't lose weight." The general consensus was that psychologists and social workers could offer a lot to weight management. However, the team commented, "They (the clients) fear counselling because it may involve pain to make change."

➢ The physiotherapist highlighted the importance of practitioners reflecting on their practice and said "We need to watch the language we use. If I say, 'you

have a good reason not to move', the physio's confirming your reason not to move."

- A number of treatment options were discussed, but no firm conclusions arose from the meeting. The approach options included:

- a working party to get advice on best practice for obesity management
- use triage
- target new mums from a preventive point of view
- use a self-management approach
- watch language, and
- revamp their current program to accommodate obese people.

My reflections: I noticed that the notes from the last team meeting two months prior were still on the board (I attended that meeting). Outcomes arising from this last meeting were not discussed. The most vocal practitioners were the physiotherapist with a dual degree in exercise science and the two nurses who ran the weight management class. These more vocal practitioners both worked more with the targeted obese population.

The only male social worker made a lot of sense in saying they should review the literature to identify what was currently best practice. However, I observed that no one listened to him. Despite not being the professions that worked most with the obese population, the psychologist and the dietitian established themselves as the two practitioners who would be developing the program for obese clients. The psychologist and the dietitian were observed to speak between themselves and were observed not to listen intently to the other professionals. At one stage, the psychologist became very outspoken about his support for a particular therapy and argued that this was the best and only therapeutic approach they should take. The psychologist did not consider services beyond psychology thereby ignoring the complexity of obesity and the male social worker's recommendation that a review of current evidence be performed first to avoid repeating what does not work and secondly, to ensure best practice. The dietitian's presentation was somewhat inconsistent. For example, despite refusing to consult with obese clients, she proclaimed her expertise in obesity by partnering with the psychologist to develop an obesity program. The dietitian also resisted modifying

the current program for overweight clients (and now only attended by obese clients) so it was suitable for obese clients. She said, “I don't want people to think we are changing the current program.” Her use of the personal pronoun “I” proclaimed her perception of decision-making power in relation to matters concerning weight. Although the dietitian presented as the obesity expert she was observed to have the least to say during the meeting.

At no time was what the end user wanted discussed. It was a meeting of individual practitioners expressing their opinions from their own ‘silos.’ I noticed that no one followed up the suggestions of the other. I was the only person taking prolific notes. The social worker’s reference to performing a literature search was ignored, and the nurse’s suggestion that more effort be taken to connect with the client was also ignored. The other nurse suggested screening for addiction, but this was also ignored. It was the nurses and the male social worker who pushed for a working group or steering committee to work on the development of a program for obesity. This suggestion was ignored and the general sense was that the psychologist and dietitian would work on the development of the program.

The experience highlighted the benefit of having more effective and formal team and meeting processes ranging from collaborative agenda setting, goal and role clarity, participative processes, active listening, action learning, shared language, consensual decision-making, minute taking, action planning and establishment of monitoring and outcome measures.

H2.2 Guest speaker for a health department community-based weight loss program *(08.03.11).*

The talk I delivered was to a different chapter of the weight management program referred to in the observation above. The group of obese participants generated their obstacles to weight loss as follows:

- Laziness
- Snacking on carbohydrates and butter after work (5pm)
- “I am addicted to sweet food and am not ready to overcome the addiction.”
- Poor portion and appetite control. “I never feel full so have two helpings every night.”
- “I like the taste of food. It gives me satisfaction and enjoyment”

- "I have no time"
- "I justified eating because I did well" – using food as a reward
- Using food as a coping strategy, particularly when they were feeling sorry for themselves.
- Blaming and playing the victim/martyr. One participant blamed her husband for manipulating her. She did all the cooking for him and her three children aged 18, 14 and 10. She said her husband did nothing. She acknowledged her tendency to play the martyr and victim. She could see that she needed new coping strategies and assertiveness. She did not acknowledge that she was making time for her son's football and to attend the current weight management program. Instead she stayed fused with "poor me" especially the belief, "No one helps me." I confronted how her "poor me" gave her an excuse not to help herself, and explored how she used helping others as a further excuse not to help herself. The other participants supported her and they collectively decided that they would write down things that they were being more proactive about for next session.
- Negative language and being who they said they were.
- Stuck in their failure and "poor me" stories

I introduced Stephen Covey's "reactive versus proactive" framework to show how the participant's barriers, as outlined above, were "reactive." They could see their "reactive" responses including:

- external locus of control
- blaming
- avoiding responsibility
- being a victim
- repeating the same patterns and not learning from their experiences, so therefore getting the same result which was usually not what they wanted
- looking for someone else to do their weight loss for them

- Based on this insight the participants generated a list of proactive behaviours

- Be active and proactive participants in their own changes
- Take responsibility
- Change language (more positive)
- Don't tell stories (defuse from old unhelpful stories)
- Stand up for self (assertiveness)
- Set goals – achievable goals
- Ask for help (interdependency)
- Problem solve
- Be positive

The participants said that the talk made them realise how important psychology was in weight loss. They agreed that they knew what they "should" eat but didn't.

Reflection: The "pre-fabricated" course these participants were enrolled in did not directly address their barriers to weight loss. The facilitators were dietitians and did not have the skills to do what I did.

Another issue was that the participants were motivated to actively work on weight loss, but the next session of the program was one month away. The program did not meet their needs for follow-up and support. It was not tailored to the participants' needs.

My conclusions about the program were as follows:

- "Prefab" courses offer a platform to get people to discuss their issues
- However, the best practitioner discipline to "unpack their issues" is someone with experience in counselling or psychology
- The group environment allows participants to learn from one other
- Managing group dynamics is important, this means that facilitators need to be trained in running groups
- The participants need to establish what their homework and follow-up needs are to reinforce ownership. Monthly sessions do not facilitate the support and momentum most participants require.

- The "one size fits all" and didactic approach used in this weight management programme does not engage participants or provide them with a platform to tell their stories and address their individual issues.
- It is important to teach participants how to reframe their language

H2.3 Attendance at the Evaluation Meeting and Final Dinner given for a Medicare Local Initiative (26.08.10).

A Medicare local was allocated money to run a chronic disease program in the community using selected private practitioners. A final dinner was conducted to thank the practitioners for their support and to provide evaluation data. In attendance were two GPs, two podiatrists, two physiotherapists, four exercise physiologists, one dietitian, and four community health workers who were working with the program. I was invited to provide a talk because of my research into multidisciplinary approaches.

Apart from my talk and the evaluation of the programme, provided by the team leader, it was a social evening. In her evaluation, the team leader said there were approximately 200 participants in the study. Nine percent of the participants withdrew from follow-up and only 7% responded to the evaluation survey. Of those responding only four surveys could be used significantly reducing the reliability and validity of any outcome data. The team leader admitted the outcomes were not good and explained that she had not run such a program previously. When I spoke to the team leader, she admitted that she had not called the practitioners together prior to the program and said she experienced difficulty getting information from them. She further admitted that the practitioners had met for the first time at the final dinner. None of the practitioners offered any comments in response to the evaluation that was provided and nor did the team leader request feedback from the practitioners. Only one GP made a comment about my talk. Everyone at the meeting ordered the highest calorie dessert except me.

Reflection: The purpose of the program was to provide multidisciplinary health services to the client. However, the selected practitioners were clearly not provided with a framework to work together because they only met one another at the final evaluation meeting. The poor outcome evaluation data belied the meeting's purpose to celebrate the end of the project. Based on the team leader's admission that she experienced difficulty getting information from the practitioners during the program; the practitioner's complete lack of participation during the presentation of the

evaluation data; and their non-reaction to such poor results, I assumed they were not engaged in the program and held no ownership. No one present offered constructive feedback. It was not a cohesive team who worked together to achieve a shared goal. Only the community health workers appeared to be invested in the process. The end users of the program (the clients) were not discussed other than in reference to the statistical data.

My impression was that a team of government workers were assigned funding to pilot a program within certain time frames but lacked the experience, knowledge and support to develop and manage a decentralised multidisciplinary team. The team she pulled together did not appear to have a shared goal or client focus and did not report working collaboratively to achieve goals. They exhibited no commitment to the program process or ownership for or interest in the program's outcomes. Again the impression was of individual practitioners working out of their own silos to provide services commensurate with their discipline and with no awareness that they were a member of a larger multidisciplinary team. It appeared that the population from which the end users were selected were not particularly motivated to address their health issues. They were referred to the program by their doctors. The issue of client type and screening for client willingness to participate fully in such a program was not addressed.

Overall, the program was poorly managed and achieved minimal outcomes using a decentralised multidisciplinary team of health professionals.

H3 MD Talks I attended – observations, reflections and field notes

H3.1 Attendance at a nutrition and dietetics seminar *(05.11.10).*

First Talk: A prominent dietitian presented research on food wastage in nursing homes and hostels. She reported that nursing homes had considerably more wastage and hostels. She reported that nursing home clients preferred eating the soups and desserts to the main meal. This dietitian's conclusion was that the nursing home should only offer soup and dessert, as well as higher calorie options such as sweet biscuits and even chocolate.

My reflection: the dietitian did not offer reasons for the increased food wastage in nursing homes (e. g., dentition, physically-based swallowing and chewing problems, physical and mental health conditions, dementia, food preference etc.). The dietitian

simply assumed the nursing home clients would only consume soft liquid style meals. When I mentioned the importance of considering psychological factors and involving disciplines other than dietetics (e.g., speech therapy for swallowing issues) in food wastage, the dietitian agreed, but maintained her conclusions.

Second talk: Another dietitian gave a presentation on food intake in a hospital that also identified food wastage.

Reflection: Again psychological and other factors were not considered. People in hospital are physically ill and may have comorbid mental health issues. Hospital food is not reputed for its quality, so if patients are ambulatory they are likely to eat from the hospital canteen or eat food brought in by relatives. The dietitian did not consider these artefacts.

H4 My work - observations, Field Notes and Reflections

H4.1 Barriers to Weight Loss.

The following barriers to weight loss were distilled from client feedback during the course of work (03.03.11).

Convenience and Self-talk

- A female client, K, reported two epiphanies in relation to barriers that impacted on her ability to lose weight. These included:
- Recognising she chose easiness and convenience over health. She attributed these choices to advertising condoning easy options and convenience.
- Recognising that it wasn't Woolworths or Jenny Craig that caused her to fail; the common denominator was her and her belief systems, particularly the one belief, “It's too hard!” and “This is my last chance.”

Sensitivity to advertising and marketing

- Julie, a weight loss client, reinforced K’s experience with the influence of advertising. She related the pressure she feels to be thinner to subliminal messages used in an advertisement for the ipad2 “thinner, lighter, magical, stunning, faster, vibrant.... a thin and lightweight profile.”

Excuses

- A longstanding client who initially lost a significant amount of weight relapsed and consistently gave the same excuses at each session for not being able to reinstate his healthy lifestyle behaviours. The excuses included: "it was too hot", "I felt too tired", "I just had to finish this particular job", "I was too anxious." Referring him to different therapists did not change his behaviours.

Using food as a reward

- A client who was referred with diabetic complications said her complications motivated her to change. She complied with the program we designed together but once her symptoms resolved she relapsed. She swapped previous sugar-based reward foods like ice cream and chocolate for potato chips.

Giving food life and death meaning

- Numerous clients say that life is not worth living unless they can eat "tasty" food like chocolate, and their favourite desserts.

H4.2 Case review.

This is a case of an extreme extrovert who successfully deconstructed her thoughts and behaviours. Ellen always has friends over and said she must provide a nice dessert. While trying to lose weight she said she had been buying "some low calorie flummery thing in the supermarket." However, on one particular day she decided to shave violet crumble on "this flummery thing" for her guests. She explained that when she went shopping she walked past the Easter eggs. She said she initially convinced herself she could put the eggs in the nest at work so "plonked them in the trolley." However, while continuing her shopping she had an intrusive thought about having to come back and tell me what she did at her next session, so took the Easter eggs out. She then disclosed that just before going to the checkout she remembered the violet crumbles, "raced to the confectionary section and picked up the biggest packet of violet crumbles." She said she was so overwhelmed with intrusive thoughts about the violet crumbles that she left her receipt, raced to the car park and as soon as she was in the car ate her first violet crumble. She ate the remainder of the packet that day.

Ellen reflected on the sequence of events that transpired in the supermarket and while she reinforced herself for putting the Easter eggs back on the supermarket shelf,

could see the automaticity of her behaviour in relation to the violet crumbles. When I asked her if there were any cognitive triggers preceding her relapse actions, she denied any awareness of cognitive triggers explaining she was totally focused on the violet crumbles and eating them. She explained that she would have to have interrupted her actions before they happened because once she started she couldn't stop. Her conclusion was to treat her actions like an addiction and decide to no longer eat violet crumble.

Ellen reported feeling liberated and empowered to have successfully "processed" her eating behaviours on her own, a finding consistent with the literature.

Reflection: Not all clients are cognitively sophisticated enough to independently deconstruct their "wins" like Ellen. My action was to listen to Ellen and help her translate her insights into future constructive actions. I captured empowering phrases that punctuated her dialogue and reflected these back to her to reinforce her part in her own change process. Phrases included:

- "I own it"
- "I committed to it"
- "I get up early and go to the gym"
- "I take responsibility"
- "I make the choice"

Shortly after her epiphany, Ellen terminated treatment.

When I reflected on my role as a "psychological facilitator" I could see that in a 15 minute dietetic session, during a personal training session, or a "fast medicine" session with a doctor that it would be impossible to unpack automatic behaviours that sabotage weight loss efforts and assist the client to problem solve their self-defeating behaviours. This insight concurred with the stakeholder evidence generated during this PhD research that psychological input is pivotal in a MCMD approach to obesity management.

A MCMD assessment would advantage from being ongoing and could be best facilitated with action research cycles. The importance of critical reflection in deconstructing and reconstructing cognitions and behaviours to make the unconscious conscious, and provide a platform to discuss the "undiscussable" is clearly indicated.

Ellen commented that when she consulted a psychologist or doctor, it was usually in the practitioner's office, and this created a situation where they didn't address the environment the client lived in. This highlighted the importance of looking at all factors in a MCMD approach – social support, environmental influences, psychology etc.

Appendix I: Support for a MCMD Approach to Weight Management

Stakeholder	Comment
Dietitian-Nutritionist (DN)	• "We need to ask what people want. Do they prefer a multiprofessional approach or a single person?"
Client (C1)	• "If I had a choice, I'd go to a dietitian."
Doctor (DR1)	• "Integrated health care is the ideal set up; it's a mindset for training of all healthcare."
Private Practice Psychologist (PP)	• "It's not that we don't want to work together; it's the logistics of it."
Client (C2)	• "I want access to other professionals to cover all bases."
Social Worker (SW)	• "Part of our core business is also providing referrals where that's required."
Research Psychologist (PR)	• "Multi-disciplinary is a fantastic way to go because it's a multi-faceted problem."
Complementary medicine educator (CE)	• "GPs need a naturopath in their practice."
Endocrinologist (DR2)	• "I think a MD approach is overcomplicating a simple issue."
Health Epidemiologist (HEp)	• He supported MCMD approaches for obesity. "You need a triaging system and a stepped program."
Team leader (N1)	• "You need psychology, physio therapy or exercise physiology, social work, dietitians, a GP, podiatrist and nurses."
Nurses (N2)	• "We are a multi-disciplinary team."
Exercise Scientist (ES)	• "To me the psychology comes first" (assumes MD approach).
Medical educationalist (ME)	• "When that patient moves from dietitian to psychologist to GP to nurse, the team must have shared language around self-management principles."

Appendix J: Nodal Analysis of Metacodes

J1. Client Factor Metacode

Demographics

Figure J.1 presents the tree node for *Demographics.*

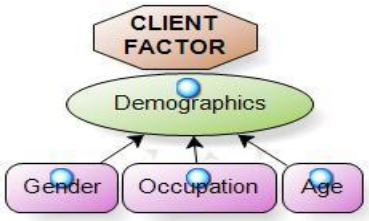

Figure J.1. Client Factor - Demographics and Child Nodes

Triangulation. Demographic factors can inform obesity assessment as detailed in the literature. Examples include:

- Iranian men with metabolic syndrome, particularly those with lower levels of education were less concerned about weight loss than their female counterparts (Maddah & Karandish, 2011).
- Transitions from traditional Mediterranean diets to Western diets were observed in young people, but not in their older counterparts (Inelmen et al., 2008).
- The French Nutrition and Health Survey showed that the overall risk of overweight or obesity was associated with occupation for men, and education level for women (Vernay et al., 2009).

Both interview and observational data in this research confirmed gender differences in obesity prevalence:

- "Women have got too many things going on upstairs cognitively whereas men are basically ignorant of their weight problem. Many of them don't even know they've got a problem until their wife walks out on them" (HEp).
- "Males don't think they are overweight, even though they usually need to lose at least 10% of their body weight"; "Women are motivated to lose weight to get into a dress"; "I have blokes who just have bad habits. They'll breeze through. But the women have got the more difficult problems, 20

years of yo-yo dieting! It requires a specialized approach" (physician working as a team member for a corporate weight loss program).

The consensus among the stakeholders was that male and female clients would benefit from being approached differently, and that different obesity models would benefit different populations. The literature supports this with demographic factors such as age, gender and ethnicity being shown to impact on weight related comorbidities such as cardiovascular disease and type 2 diabetes (National Health and Medical Research Council, 2012b). Based on the data presented the inclusion of *demographic factors* as a *client factor* appeared warranted.

Diet and nutrition.

The *client factor* labelled *diet and nutrition*, (see Figure J.2) was composed of four child nodes - *dieting history, cooking skills, dietary history, and eating habits*.

Triangulation: Most position papers, guidelines and research papers on obesity recommended assessing the components included in this parent node, *client factors*. These recommendations included: weight history, dieting history, current eating patterns, nutritional intake, environmental and other factors impacting on eating and nutrition intake (American Dietetic Association, 2009; Dietitians Association of Australia, 2012a; National Health and Medical Research Council, 2012b), and a family history of obesity (National Health and Medical Research Council, 2003a). Accordingly, the inclusion of this child node was justified.

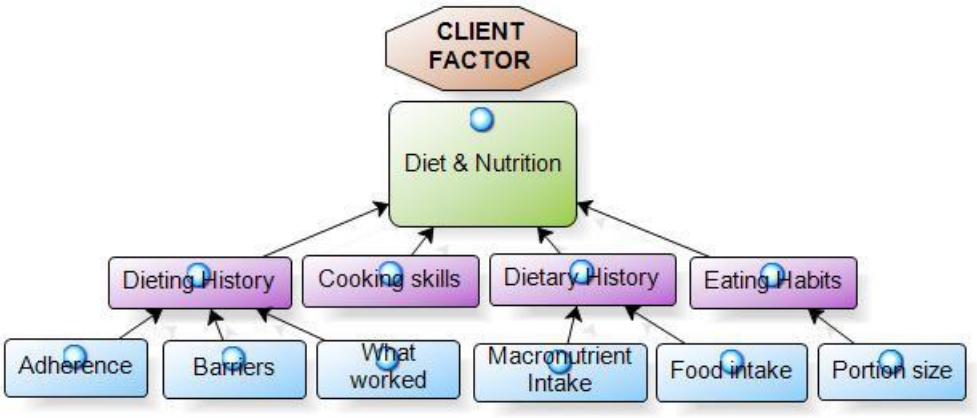

Figure J.2. Client Factor - Diet & Nutrition and Child Nodes

Health behaviours

The *client factor* labelled *health behaviours* (see Figure J.3) was composed of two child nodes: *physical activity* and *eating behaviours*.

Triangulation: Sedentary lifestyles and poor eating behaviours are two of the most significant drivers of obesity (World Health Organisation, 2003). Although research affirmed the place of these parent and child nodes, only a cursory overview of these two components has been provided. It is beyond the limits of this dissertation to explore the complex interplay between energy intake and energy expenditure behaviours in an obesogenic environment that has its own array of moderating and mediating influences (National Health and Medical Research Council, 2010). An example of the complexity of forces impacting obesity was the DAA's (2012a) and NHLBI's (2004) recommendation to assess the impact of life events, transitions and other critical periods (e.g. menstruation, pregnancy, menopause, quitting smoking) on weight.

Observational data provided by clients or client groups reiterated the importance of including health behaviours in a MCMD approach. Clients identified their issues with food and physical activity as reasons they gained weight and could not maintain weight loss.

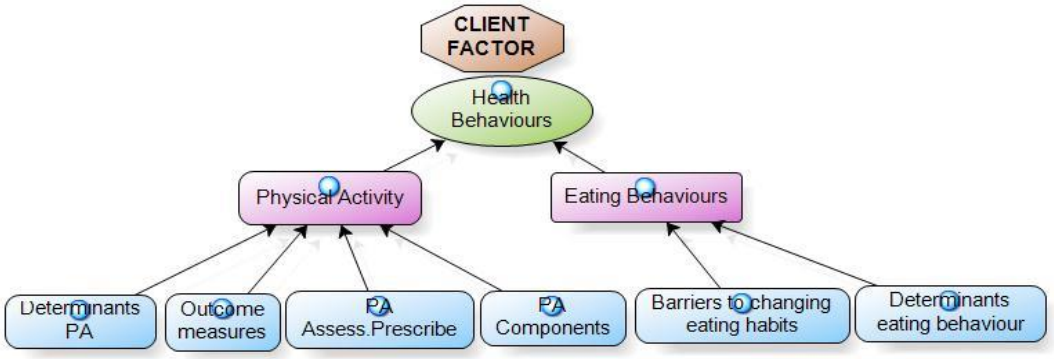

Figure J.3. Client Factor - Health Behaviours and Child Nodes

Psychological factors

Psychological factors were reported by stakeholders who were interviewed as one of the most important components to focus on in weight management. The *client factor* labelled, *psychology* (see Figure J.4) summarised the psychology constructs relevant to obesity management that emerged during the convergent interviews: *preferred psychological interventions, psychological barriers (*that could impact on

weight management), *psychological treatment history* and *psychological client factors.* These components both inform treatment interventions and impact on treatment outcomes.

Triangulation: The inclusion of this factor was justified by the high incidence of behavioural and psychological factors in obese clients. Examples included:

- impaired sleep and associated night eating (Dietitians Association of Australia, 2005);
- social isolation and depression; responses to emotions such as stress and anxiety; and situations such as boredom (Levitan & Davis, 2010; National Health and Medical Research Council, 2003a). Rates of anxiety and depression were three to four times higher among the obese when compared to leaner peers (Greenberg, Perna, Kaplan, & Sullivan, 2005);
- negative body image, eating disorders and poor quality of life (Greenberg et al., 2005);
- self-esteem issues, discrimination, bullying and history of abuse or trauma (Parliament of South Australia, 2004);
- sensitivity to weight and body-related issues, particularly in adolescent populations where it is important to prevent and not cause or kindle body dissatisfaction or restrictive eating (Kohn et al., 2006);
- perception of being overweight was correlated with psychological distress (Atlantis & Ball, 2008).

Psychological factors may need to be assessed, as psychological issues can:

- play a major role in perpetuating over-consumption of food, for example using food for comfort (Levitan & Davis, 2010),
- contribute to reduced activity levels (Atlantis et al., 2008) and
- lead to relapse on health programs (Byrne, Cooper, & Fairburn, 2003).

Observational data provided by clients emphasised the importance of psychological factors in weight loss. For example, clients admitted to using food as a reward, for emotional support and giving the life meaning.

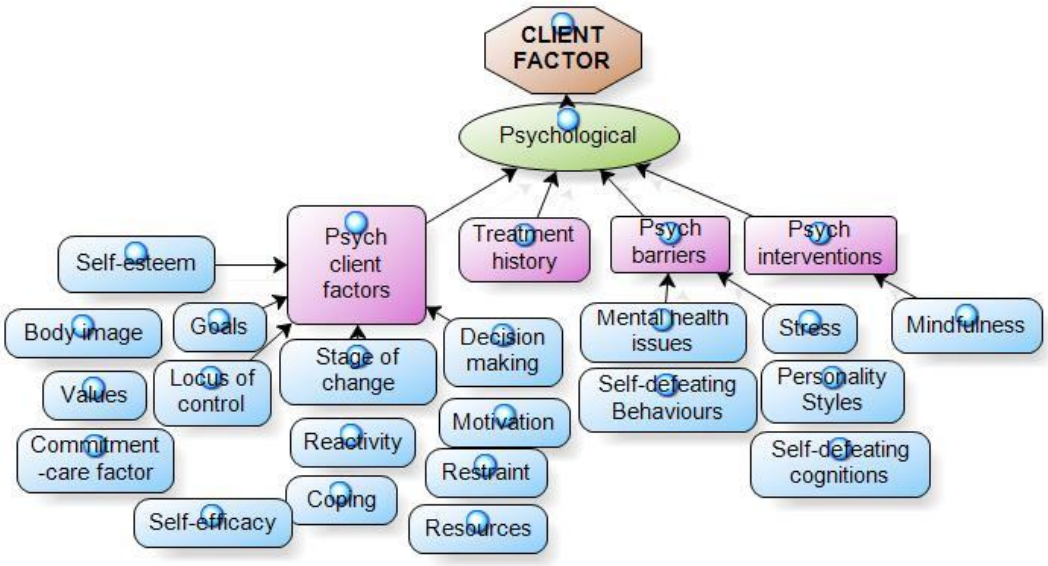

Figure J.4. Client Factor – Psychological and Child Nodes

Assessing *psychological* components can identify:

- readiness to change (Turner, Thomas, Wagner, & Moseley, 2008);
- factors motivating the individual to lose weight, for example the desire to improve appearance or health (American Dietetic Association, 2009). Motivating factors such as appearance can be incorporated into assessments as outcome measures, as reinforcers and opportunities to encourage ongoing compliance.
- factors positively associated with weight loss such as internal motivation and functional coping strategies (Rössner et al., 2008) and self-efficacy (Visram, Crosland, & Cording, 2009);
- potential barriers to complying with a weight loss program, for example, the time and financial constraints inherent to current health care systems (Kiernan & Winkleby, 2000), or disinhibition and restraint factors (Bryant, King, & Blundell, 2008);
- the clients' viewpoint on the risks and benefits of weight loss. The relevance of this information is that it can either support or sabotage weight loss strategies (National Heart Lung and Blood Institute, 2000);
- triggers for weight loss or relapse which can help build a strategy for stimulus control (National Health and Medical Research Council, 2003a).

There are numerous psychological interventions that have been trialled with obesity management that could be explored during the implementation phase of a MCMD model. These include: cognitive behavioural therapy (Werrij et al., 2009), acceptance and commitment therapy (Lillis & B., 2008); mindfulness (Singh et al., 2008) and health coaching (Leahey & Wing, 2012).

A more detailed breakdown of this node is indicated for the implementation phase.

Social factors

The *client factor* labelled, *social* (see J.5.) was composed of nine child nodes: *family factors, economic changes, social changes, social habits, social issues, social pressure, social support, socio-political view and work-life balance* (noted in Figure J.5. in purple shading*).* The *family factors* label was constituted from the family factors that influence food and eating habits (*early life experiences, family food boundaries, family health behaviours, family issues and family structure).*

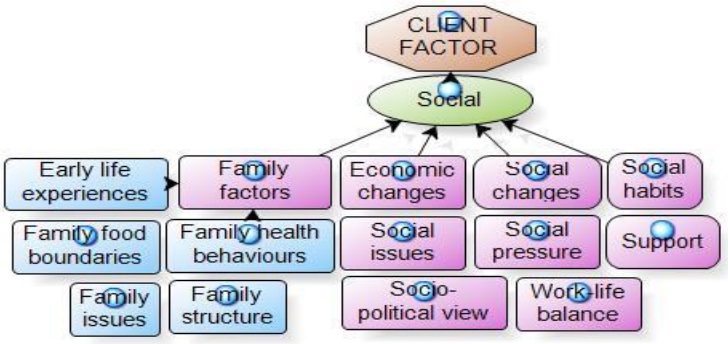

Figure J.5. Client Factor – Social and Child Nodes

Triangulation: Social factors have a powerful influence on our food choices and eating habits. This influence justified their inclusion in a MCMD model. For example, interruptions to self-care caused by events such as injury or illness, financial and living insecurity, as well as institutional care, are factors that affect one's ability to manage our food intake (Dietitians Association of Australia, 2005). Social support has been identified as an important factor in facilitating weight loss outcomes (National Heart Lung and Blood Institute, 2000; J. S. Porter, M. K. Bean, C. K. Gerke, & M. Stern, 2010). The status of family support needs to be addressed in assessment, particularly in the case of children and adolescents (Kohn et al., 2006).

Observational data also supported the importance of social factors in obesity management. Clients viewed eating as important component of their social interactions and a major barrier to weight loss.

Weight-related factors

The final parent node under *client factors* was *weight-related factors* (see Figure J.6.). As the components are face valid they will not be detailed in this thesis.

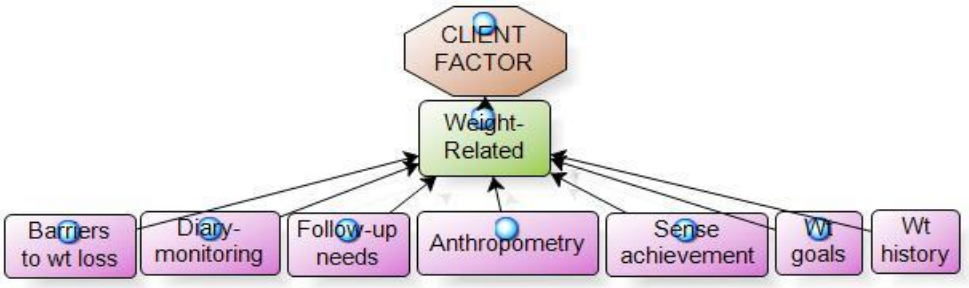

Figure J.6. Client Factor – Weight-Related and Child Nodes

J2. Practitioner Factor Metacode

Practitioner process approach

The *practitioner factor, practitioner process approach* is presented in Figure J.7. This parent node referred to the weight management processes that practitioners preferred to use.

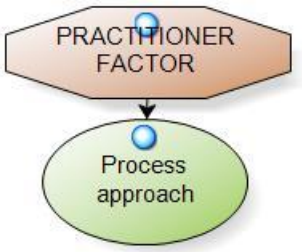

Figure J.7. Practitioner Factor – Process Approach

Each practitioner and client who was interviewed in this research had a different preference regarding the processes to apply to weight management. I have summarised a selection of these process factors below. The brackets indicate the stakeholders who concurred with the various approaches. The factors include:

- algorithmic approach (DN, PP, CM);

- staged assessment commencing with self-referral and pre-screening that directs the client to discipline-specific assessment and treatment (DN, SW, N1, N2);
- only proceed if the client is motivated (ES, DR2, N1, N2, and CM);
- an individual approach with a dietitian (C1);
- a MD approach (C2, DN, SW, PP, PR, N1, N2, MEd, HEp, CM);
- if there was a MCMD assessment the doctor should perform the assessment and the coordination (DR1, PP, C2, and DR2);
- if there was a MCMD assessment whoever the primary health care professional is should do the assessment and coordination (PR, DN, N1, and N2);
- for a MCMD approach, coherence between the disciplines needs to be fostered (PR, N1);
- use a weight management hub to simplify team management (PR, DN);
- everyone with a BMI over 30 should be referred to a psychologist (PP);
- practitioners should provide objective data that assures the client that the weight loss program will work, "if you do the right things" (C2, ES);
- nurses would be the best coordinators because they are plentiful and cheaper than other professionals (PP);
- re-engineering the workforce and training weight loss assistants could be more cost effective (DN);
- an assistant can perform the assessments but a specialist needs to interpret and communicate the results to her (C2). DR1 did not like using assistants in this capacity;
- ensure good client-practitioner fit to optimise working alliance (DN, C1, C2, N1, N2, SW, MEd, PR, and PP);
- ensure that the patient and practitioner are at the same stage of the 'patient journey' (MEd);

- ensure that the practitioner is supportive and empathetic (C1, C2, N1, N2, SW, DN, MEd);
- shared language and shared information about self-management (MEd);
- inform the client of the health consequences of not losing weight (C2);
- offer pharmacological management such as appetite suppressants (C2);
- champion a feminist empowerment based approach to eating issues that incorporates an informed choice by the client (SW);
- see group participants individually prior to group work to build rapport (N1, N2, SW) and to:
    - clarify hopes and expectations;
    - identify barriers to weight loss;
    - identify importance of health and motivators;
    - obtain a family history of health-related issues.
- offer longer interventions of at least 6 months duration, commencing with fortnightly sessions and followed by maintenance programs to optimise outcomes (N1, 2);
- include exercise earlier in the program (N1, N2);
- be responsive to group needs and maintain a theme of continuous improvement through feedback (N2);
- use objective feedback e.g. pedometers (ES);
- assess psychological factors first (C1, ES);
- diet before exercise. Medical clearance before exercise (ES);
- once psychology, diet and exercise are addressed the focus needs to be on behaviour change;
- provide feedback (N1, N2);
- legislative changes or government incentive with financial ramifications (e.g., having to pay for two seats on a plane) are the only interventions that will motivate people to do something about their weight (ES, DR2).

The data indicated that most practitioners do not use systems that collect, summarise and evaluate individual or cumulative client data to inform care. To manage chronic conditions effectively requires delivery designs that facilitate productive practitioner-client interactions (Oandasan et al., 2006).

This diversity of opinion regarding MCMD approaches and obesity management in general was also reflected in observational data and the literature. The general consensus was that dynamic approaches to obesity management that are responsive to both the practitioner and the client could form effective approaches. This issue will be elaborated further in Chapter 6.

Resources and barriers

The *practitioner factor* labelled, *resources and barriers,* is presented in Figure J.8. These barriers have been identified in a number of parent and child nodes, and the most relevant of them is discussed in Chapter 5.

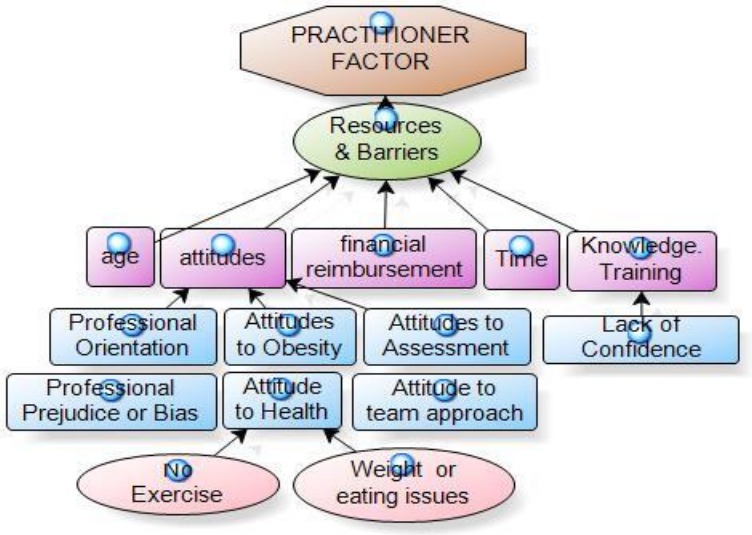

Figure J.8. Practitioner Factor – Resources and Barriers

Roles and boundaries

The *practitioner factor* labelled*, roles and boundaries,* and its child nodes are depicted in Figure J.9. An explication of this parent node has been provided

in Appendix J and Chapter 6.

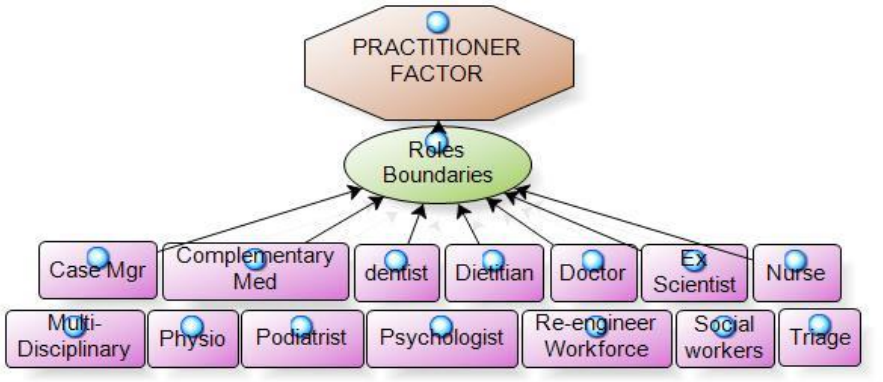

Figure J.9. Practitioner Factors – Professional Roles and Boundaries

J3. Process Factor Metacode

Client process factors

The *process factor* labelled, *client process factor* (see Figure J.10) outlines the process steps involved in assessing a client (the assessment areas and potential instruments), implementing an intervention (including implementation approaches), and monitoring and evaluating the intervention and maintenance processes, such as the process for relapse prevention. The components are face valid and follow intervention processes for change (Dick, 2001).

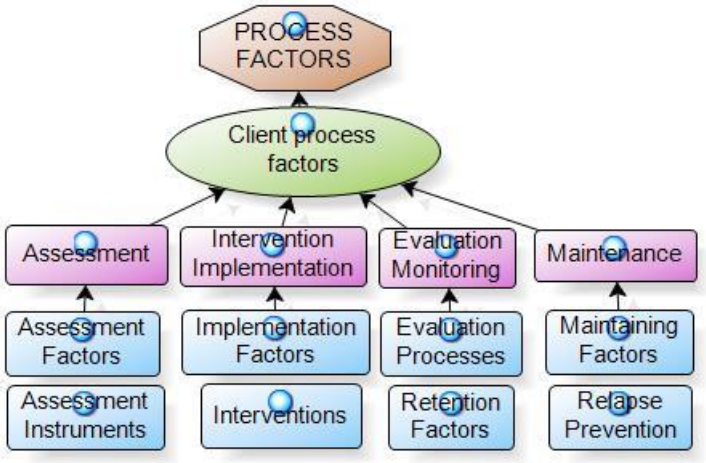

Figure J.10. Process Factors – Client process factors and child nodes

Process factors are elaborated in Chapter 6.

Practitioner process factors

The *process factor* labelled, *practitioner process factors* (see Figure J.11.) was assigned only two child nodes at this early stage of development, *being genuine and*

client feedback. I included it as a child node because I suspected that the *process factor* child nodes should correspond to the over-arching metacodes.

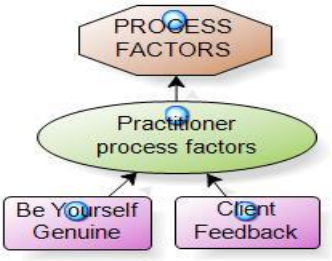

Figure J.11. Process Factor – Practitioner process factor and child nodes

Triangulation with the literature: *Practitioner process* factors are well researched in the psychology (Duncan et al., 2009) and self-management (Wagner et al., 2001) literature. For example, research on worksite wellness programs with a weight management component, indicated that offering structured programs with prescheduled sessions worked better than unstructured approaches (Anderson et al., 2009). These authors also found that providing information plus behavioural counselling worked better than providing information only. Process issues will continue to be informed by ongoing action research. Process conclusions are presented in Chapter 6.

Process approach

The *process factor* labelled, *process approach* (see Figure J.12.) referred to the universal approaches that should be adopted in executing a MCMD approach to obesity management. The stakeholders that were interviewed reported different views on a process approach.

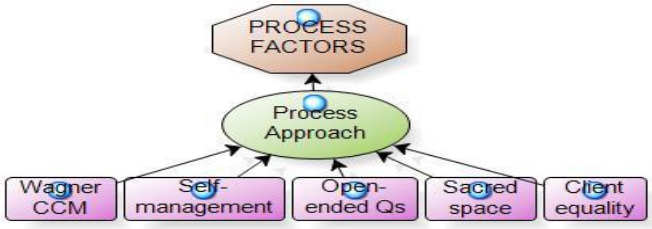

Figure J.12. Process factors – process approach

Appendix K: MCMD Components

Psychology

Discussed in Section 4.2.2 above

Food and nutrition.

Convergent information: There was a general acceptance that food and nutrition would be a component of any weight loss approach. The following points confirmed this.

- The psychologist in private practice (PP) worked in a MD weight management team with dietitians prior to working in private practice. Since being in private practice she regularly referred clients to dietitians to have their food and nutrition addressed.
- SW assessed every incoming client to determine whether they needed referral to a dietitian for advice regarding food and nutrition.
- PR believed that a screening process for overweight and obese clients should identify whether diet would need to be addressed.
- ES believed diet should precede exercise, but be focused on after psychology.
- DR1 referred to a dietitian who used an integrated approach for dietary intervention.
- C1 believed that a dietitian was the expert in weight loss and nutrition.

Divergent Information: These comments did not deny the role of food and nutrition. They referred to the role of the dietitian and efficacy of diets in being able to achieve sustained weight loss.

- C2 believed that a dietitian should be consulted only if one's nutrition knowledge was poor.
- HEp believed that nutrition was a lifestyle issue that needed to be addressed but did not include dietitians in his program.

The doctors who were interviewed endorsed the role of food in weight management, but were sceptical of current dietary recommendations.

- "I think our diets are up a creek. The pyramid is all wrong. I think our fashions are a bit wrong at the moment. They need to change" (DR1).
- DR2 said the key to weight loss was "reduction in caloric intake in the vast majority of settings", but warned, "There isn't a single bit of good evidence to support one diet over another that I'm aware of." He added that there was no evidence that referring clients to dietitians for dietary advice affected outcomes.

Physical activity.

Convergent information. The following professionals referred to physical activity as a component of a weight management approach.

- PR believed that a screening process for overweight and obese clients should identify whether exercise needed to be addressed on its own, or in combination with other components.
- DR1 reported referring her patients to physiotherapists to optimise their capacity to move. She also stated that she provided her own exercise advice.
- "Look at exercise and barriers to exercise. Look at formalized exercise versus incidental exercise" (DN).
- SW stated that she ensured her clients' "exercise is on track" and that they were not participating in "excessive exercise." She qualified her assertion by stating that she would not perform a comprehensive exercise assessment because she was not trained to do so.
- HEp nominated inadequate physical activity as a component that needed to be addressed in weight management.
- As an exercise scientist, ES supported exercise. She said, "My overall goal would be to see the process change whereby we're not just looking at exercise for that single outcome of weight loss" but for the general maintenance levels of physical activity.
- DR2 supported exercise as a component: "There's very good evidence that if you maintain an exercise program, in the presence of a hypocaloric diet, that you'll preserve muscle mass."

- C1 and C2 discussed exercise in weight loss but did not demonstrate a complete understanding of its relationship to health and weight.
- The nurses included exercise in their program and used an exercise professional in their program.

Divergent information. Although the majority of interviewees acknowledged that exercise is a component of a weight loss program, they were not always in agreement as to whose role it was to give exercise advice.

- PP did not refer her overweight and obese clients to an exercise professional. She said that she personally taught her clients how to do some exercise. PP had no training in exercise and did not exercise herself.
- "It seems to me what the exercise physiologist takes on as his capacity would be what I take on as my capacity" (DR1).
- "I would want the dietitian to assess for exercise. I'd be saying why do I have to go to an exercise physiologist?" (C1).

Triangulation with observation. At a meeting of 30 professionals (all psychologists except for 3 social workers, 1 GP and 1 disability support worker) that I facilitated to discuss a MD approach to obesity management, no one referred to exercise as an intervention component.

Exercise was acknowledged as a component of weight loss, but it was the least understood of the components of obesity addressed in this section. ES confirmed this, stating, "Very few people understand the energy balance model and understand the energy of exercise."

Triangulation with literature. A Cochrane review demonstrated that exercise impacts positively on the weight of overweight and obese individuals (Shaw et al., 2009). Exercise alone had a marginal impact on weight loss, but when combined with diet, weight loss increased notably, regardless of exercise intensity. Overall, diet was more effective than exercise in facilitating weight loss.

Medicine.

The practitioners with medical backgrounds (i.e., nurses and doctors) openly supported the inclusion of medicine and doctors in a weight management approach.

- "The GP has to be the first to find out if the person is requiring weight management" (PP).
- "You cannot have a blanket rule about how you approach everybody that's obese. That's why clinicians try to actually take a history and perform an examination" (DR2).
- DR1 believed a MCMD assessment for weight management should be conducted by a doctor only. She stated, "It's our job to look at the whole person."

Triangulation with observational data. The only GP to attend a MHPN evening I facilitated believed that the GP should conduct the MD assessment in a MCMD approach to obesity. Another GP offering observational data described both the strengths and limitations of GPs in team situations.

- "GPs like to be problem solving; linking symptoms and staying alert for complications, red flags and emerging conditions; working out which health priorities need to be addressed first and sorting through the junk and non-junk conditions. They are a great asset in the "team" but they can't be expected to do everything and they are not good at everything. I don't think it's knowledge that is missing it's a historical lack of teamwork in general practice."

This GP referred to how healthcare professionals worked well together in teams during epidemics and wars. "It was all hands on deck and everyone worked beyond their previous level of competency." However, after the crisis professionals retreated to their "silos." She spoke about the chronic disease tsunami we now confronted, describing it as a much more difficult force to change.

The non-medical practitioners acknowledged the role of medicine and doctors in weight management, but also voiced the following reservations:

- "I think the medical model is hugely accepted as the most effective model at the moment, but unfortunately it lacks" (PR).
- The social worker referred clients to GPs and allied health professionals. However, she qualified, "We refer to practitioners that don't just use a top down medical model in working with clients. We prefer practitioners being

partners in that person's recovery process and listening to patients about what they want" (SW).

- "Overweight or obese and sedentary people without knowing anything else need to be screened by their GP. However, the issue is GPs don't necessarily want to take on that responsibility. Our health professionals in the medical field don't understand exercise" (ES).

Environmental issues.

Interviewees did not consistently refer to the client's environment as a consideration in weight management. Comments about the social environment included:

- The psychologist in private practice (PP) said that it was important to assess her client's social environment in order to identify the psychosocial triggers for weight gain. She said, "I also try to encourage people to increase their social networks. I'm big on social support."

- SW said the protocol her workplace adhered to in managing clients looked at, "What support networks they have in place? What was the relationship with their family? Is it a good one? Is it a source of support or conflict? Is the conflict around the eating issue or is it around issues arising from the family of origin that might be impacting?"

Only three interviewees identified the broader environment as an issue for obesity:

- "I think one of the problems with overweight and obesity is that it is an inexorable result of wealth and development" (DN).

- "Obesity is a signal that something's going wrong in the whole environment. What is in the environment that's doing it? Look at not only the drivers but the drivers of the drivers" (HEp). HEp also stated, "To deal with individual obesity you might have to deal with the micro environment in their home."

- The endocrinologist voiced strong dissatisfaction with the government's inaction associated with environmental drivers for obesity: "Our government hasn't even got the guts to ban junk food advertising in children's TV time slots despite the fact that there's enormous evidence to support the link

> between food advertising to kids and obesity, enormous evidence. Just think, if there was never an advertisement for McDonald's, kids wouldn't know what McDonald's was!"

In contrast to the prominent role that the environment plays in obesogenicity, individuals that I interviewed and observed placed little focus on this factor. They tended to discuss issues from the framework in which they worked. Literature sources that explore more innovative approaches to managing obesity and chronic disease seemed to incorporate an environmental focus (Butland et al., 2007; Oandasan et al., 2006; Swinburn et al., 2011; Wagner et al., 2001).

Appendix L: MCMD Disciplines

Medicine

Referred to in Section 4.2.3.

Dietitians

Attitudes towards dietitians being involved in weight management varied and were even contradictory (see Table M1 below).

Table L1

Attitudes about the role of the dietitian in weight management

Attitude	Stakeholder comment
Support dietetics	**Clients** • "Dietitian worked until I gave up" (C2). • "I think a dietitian is a specialist in that field. If I had a choice, I'd go to a dietitian" (C1). **Private Practice Psychologist** • "If it's just lack of knowledge you send them to a dietitian?" **Doctor** • "I tend to send them to the dietitian who is also an integrative person" (DR1). **Social Worker** • SW said, "We did lots of literature reviews on the effect of weighing and looking at food diaries within the sessions. We made the decision that we would separate that and encourage them to have a dietitian and/or GP monitoring that side of things."
Question role of dietetics	**Dietitian** • "Dietitians are not the only people who can help. They have been unsuccessful because of their very narrow approach. I think we need a new approach. I don't think that if you go off to a dietitian and you do one to one with the dietitian five times a year that it is going to work. There is no evidence that this will work." **Doctor** • "There's not a lot of evidence that referral to a dietitian makes any difference to a patient's weight."

The dietitian working in a community based MD team refused to consult overweight or obese clients so the nurses ran the weight management program. However, when this team decided to develop a program for obesity the dietitian took control of the program because she identified herself as the expert. Her position was ratified by research that explored dietitians' attitudes about obesity management and

found that 75% of dietitians believe they are the profession best trained to manage obesity (Barr et al., 2004). DN and several recently graduated dietitians negated these views. They explained that dietitians receive less than one week of training on obesity in their tertiary training programs. In fact, DN believed that dietitians were unsuccessful with weight loss because of their narrow approach. DR2 further stated that there was no research evidence to show that using a dietitian contributed to weight loss outcomes. C2 confirmed that consulting a dietitian did not culminate in her achieving weight loss success. Notwithstanding, SW, DR1 and PP referred to dietitians and C1 viewed dietitians as the weight loss experts. C2 saw dietitians' roles as limited to a few sessions of nutrition education. Despite a lack of support for dietitians cited by a number of stakeholders MCMD studies often include the services of a dietitian (e.g., Bovet et al., 2008; Donini et al., 2009).

Psychologists

Attitudes towards the use of psychologists in weight management also varied among the stakeholders interviewed. There was strong support for the psychologist's role by PR, DN, SW, N1, N2 and C2. However, C1, DR1 and DR2 did not see merit in consulting a psychologist for weight loss. DR2 said that there was no evidence that referral to a psychologist generated weight loss outcomes. DR1 did not associate psychologists with weight management.

Observational data was more supportive of the role of the psychologist in weight management. The physician who worked in corporate health believed obese patients should be treated by a psychologist prior to commencing a weight management plan. Furthermore the high attendance of psychologists at many of the MD meetings that I either facilitated or observed strongly supported the notion that psychologists themselves believed that they play a role in obesity management. The strong support by stakeholders to include more psychology as a component for a MCMD approach validated the inclusion of psychology as a discipline in a MCMD approach. Literature cited in Section 4.2.2 (psychology as a component of a MCMD approach) and reviews exploring the role of psychology in obesity management (Bogle & Sykes, 2011) suggest that psychologist could offer a beneficial role in weight management.

Exercise scientists

Although stakeholders identified exercise as a necessary component of a MCMD approach, there was a lack of clarity among the group as to which class of professionals

should provide exercise services. DN, DR1 and C1 expressed uncertainty about the role of an exercise physiologist. Role statements provided by Exercise & Sports Science Australia (ESSA) identify exercise scientists and exercise physiologists as the experts in exercise (ESSA, 2013). The role statements for physiotherapists do not identify them as experts in exercise (University of Sydney, 2013). Regardless, DR1, N1 and N2 referred their overweight and obese clients to a physiotherapist for exercise advice. C2 was aware of the role of the exercise physiologist but preferred not to use them. PP was also aware of the exercise physiologist's role, but did not refer to them. Instead she provided her own general exercise advice. SW, PR, DR2, CM, HEp referred to the importance of exercise but did not nominate a professional who would provide the exercise service. Nor did they indicate that they referred to an exercise professional. Only ES, who trained exercise physiologists, saw exercise physiologists as having the main role in the provision and prescription of exercise.

Nurses

DN, PP, HEp, ES, N1 and N2 endorsed the idea that nurses were the most likely to be coordinators for a MCMD approach. As noted above, the medical professionals, DR1, DR2 and a GP providing observational data, believed the doctor should conduct coordination for a MCMD approach.

Although the nurse had reasonable support to take a coordination role, only nurses themselves (N1 and N2) and the MD team they worked with (observational data) endorsed nurses to play a role in weight management. The literature also supported the role of the nurse in MD teams working with obesity (Epstein et al., 2010; Rabbitt & Coyne, 2012).

Social workers

N1 believed social workers were good with weight loss groups (as opposed to one on one consultation). Notwithstanding, N2 referred individual cases to the social worker on her MD team. SW said she gave incoming clients the option of consulting either a psychologist or a social worker. DN reported that social workers were often members of MD teams and would be one of the professions suitable to be coordinators. The systems orientation and strengths-based perspectives social workers are trained in, are regarded as assets that warrant the inclusion of social workers in MD teams working with obesity management (Eliadis, 2006; Lawrence et al., 2010).

Physiotherapists

DR1, N1, and N2 regularly referred clients to physiotherapists. However, DN and MEd were the only other interviewees to mention physiotherapists as MD team members. Reference to a university providing training in physiotherapy (University of Sydney, 2013) and the Australian Physiotherapy Association website (Australian Physiotherapy Association, 2013) did not identify physiotherapy as a discipline directly related to obesity management. However, as pointed out by DR1 they can assist an individual's capacity to move in some situations.

Complementary medicine

The naturopath was the only interviewee to endorse a role for complementary medicine in a MCMD approach for weight management. Despite the lack of acknowledgement for the role of complementary research evidence is building on the use of complementary therapies in obesity management. One review found promising roles for green tea catechins, acupuncture and Chinese herbal medicine (Lovejoy, 2013), and another for mixed oriental herbal medicines (Park et al., 2012). Other reviews concluded that chromium supplementation (Onakpoya et al., 2013) and calcium supplementation (Onakpoya et al., 2011) contributed to small, but statistically significant reductions in weight. However, the reviews cited methodological issues that hindered firm generalisation of the research conclusions and therefore a need for further research.

Dentistry

SW was the only professional to refer to a dentist. Of 2965 dentists who responded to a study exploring the role of dentists in addressing obesity, only ~5% offered a form of counselling for obesity. However, 50% of the respondents were interested in providing obesity-related services (Curran et al., 2010). More than 80% of the respondents said they would be more willing to intervene if obesity was linked to oral disease. Recent research suggests a link between obesity, type 2 diabetes and periodontal disease (Levine, 2013). Given the epidemic proportion of obesity involving dentists and dental assistants in obesity interventions within the scope of dental practice would seem warranted.

Podiatry

Referral of obese clients to a podiatrist prior to exercise prescription was recommended by only one professional, a podiatrist, during an observational data collection event. She explained that an assessment of an obese person's foot and provision of orthotics, if required, would reduce injury on exercise. A systematic review concluded that increased BMI is strongly associated with non-specific foot pain and plantar heel pain (Butterworth et al., 2012). This finding supports consideration of including podiatrists in a comprehensive MCMD approach.

Appendix M: Support for Client-Focused Approaches

Representative Stakeholder Comments

Dietitian-Nutritionist (DN)

- "We need to get into a partnership system with the client and get negotiated goals and strategies. We need to ask people what they want from the health system, what style suits them."

Family Doctor (DR1)

- "Look at patients as people, how they operate with life and what they think they have some chance of actually doing."

Psychologist (PP)

- "In the first session I don't talk about their weight because I want to find out about them."

Social Worker (SW)

- "We are person-centred. Interventions are directed by the person rather than the therapist's agenda. We empower clients to make informed decisions."

Community Health Nurses (N1 & N2).

- "We promote self-management and client focus and ask questions like, 'What is your problem and how can we work together to get over it?'" (N1).
- "Let the client tell their story so they feel important and validated. Develop rapport and a relationship" (N2).

Exercise Scientist (ES)

- "It really comes to the point of understanding why they're there and are they prepared for the changes that they're going to need to make because the best programs will stay just that, a program. They won't be actioned unless someone wants to."

Medical educationalist (MEd)

- "Train the clinicians in the skills they need to help the patients self-manage. Promote partnership between clinician and patient."

Clients (C1 & C2)

- "Treat me as an individual. I want an individual program that suits me, my needs, my motivations, my issues. I want empathy and understanding, strategies for maintaining weight. You feel like you are in a sausage factory in most doctors' consultations" (C1).
- "If I don't connect with the person, I just don't keep going" (C2).

Appendix N: Process Approach (Client Factors)

Each practitioner and even the client's that were interviewed had different preferences regarding processes to apply to weight management. These preferences are summarised below.

Dietitian-Nutritionist (DN)

DN recommended a staged assessment commencing with a self-assessment that could be conducted in a waiting room by the client. She suggested that a poster on the waiting-room wall could help the client self-identify their weight issue and provide a pathway to self-referral. DN believed this process would screen unmotivated people. DN then recommended a pre-screening, 'triage-like' system after self-assessment. This would be a more comprehensive assessment, relevant to the disciplines likely to be involved in weight management. Any health professional could conduct this pre-screening. The pre-screening would determine what further specialist assessment the client needed to be referred to. DN favoured an algorithmic approach and while she supported the use of multiple disciplines believes re-engineering the workforce and training weight loss assistants could be a cost effective approach to consider.

Client (C1)

C1 emphasised the importance of assessing psychological factors prior to commencing a weight management program. These factors included: identifying a person's attitudes to weight and weight management; the reasons why they gain weight and self-sabotage; what motivates them to lose weight; what strategies they believe would help them lose weight and maintain their weight loss. She expressly wanted them to include strategies to help a person be more mindful of what they are eating and to help prevent "that self-destructive cycle" of self-sabotage. She emphasised the importance of good client-practitioner fit, and having a supportive, empathetic treatment provider. C1 preferred an individual approach to weight management. She reported a preference for a dietitian to provide the services she required. She wanted the dietitian to provide nutritional input through to psychological support and exercise advice.

General Medical Practitioner (DR1)

DR1 supported integrated approaches but not a MCMD assessment. She said, "Why do you need an assessment apart from maybe a baseline for the patients

themselves to give some idea of progress?" DR1 opposed "fragmenting care and having the nurse do a little bit then having it handed over to the doctor." In explanation she believed the assessments a nurse would conduct, if performed by a doctor, would facilitate rapport between doctor and patient. It would give the patient the opportunity to open up to the doctor, without having to repeat what they had already told the nurse. Consistent with this view, DR1 believed doctors were the best profession to conduct a multi-assessment if one was to be implemented. When asked how she would see an integrated approach to weight management working if it was implemented, DR1 said, "I think it's a mindset for training of all healthcare. Medicare recognizes 27 healthcare disciplines. So I think that if you can get your training so that everybody understands the things that you do, it would seem ideal."

Private Practice Psychologist (PP)

PP saw the GP as having a central role in the initial screening assessment of obese clients and whether they should be referred to a dietitian or psychologist. PP proposed that everyone with a BMI over 30 should be referred to a psychologist. PP suggested using an algorithmic decision making process to guide treatment. She believed a nurse would be the best coordinator because they are plentiful and cheaper than professionals like doctors, dietitians and psychologists.

Client (C2)

C2 believed a MCMD approach should commence with a thorough medical assessment that provided "real data" to work with. The objectivity of the data assured her that her weight loss program would work, "if you do the right things," and forced her to take personal responsibility when she did not lose weight. C2 promoted an initial assessment by a medical professional because it showed her that there are medical consequences for weight. She prefaced that while she was happy for an assistant to perform the assessments she wanted a specialist to interpret and communicate the results to her. C2 supported a MCMD approach and pharmacological management (namely, appetite suppressants).

Social Work (SW)

SW championed a feminist empowerment based approach to eating issues. She detailed the structured, step-by-step approach her workplace took in managing eating issues including: general information for clients about SW's centre and eating issues;

client intake notes; medical information form; consent form to consult practitioners; consent form for research; self-assessment form; and, the 12-18 month follow-up evaluation. Her service did not follow the medical model and was voluntary. Their processes facilitated informed choice by the client. They took a team approach that centred on individualising the referral based on client need and client-practitioner fit. Her service subscribed to the importance of forming an effective working alliance and encouraging regular feedback.

Research Psychologist (PR)

PR emphasised that "one size doesn't fit all" when it came to weight loss programs. PR stated that a "screening process would be able to identify which method of treatment would be most effective for them." She indicated that combinations of diet, exercise, psychology and pharmacological management could be considered as intervention possibilities. She believed the first point of contact, regardless of their discipline, should conduct the screening. Ideally she believed an assessment screen should identify the providers the person should be referred to and what treatment would be the most effective for them. To simplify management of the team providers she suggested a weight management hub. PR supported a multidisciplinary approach but warned, "I think what might be missing in a multi-disciplinary approach is the coherence between the disciplines."

Complementary Medicine Representative (CE)

CM provided a decision tree approach to managing obesity commencing with psychological screening for motivation. If the client was motivated an individual assessment of the individual's biochemistry would be conducted. This assessment would determine whether the person could lose weight through diet and exercise alone, or required "biochemical" interventions to encourage weight loss, concurrent with diet and exercise interventions.

Endocrinologist (DR2)

DR2 was not a proponent of multidisciplinary approaches. He believed including a dietitian or psychologist in the treatment of overweight and obese clients did not improve outcomes. DR2 reported that the medical profession was provided with evidence-based guidelines on measuring medical conditions related to obesity such as diabetes, thyroid function and hyperlipidaemia. He suggested that all general

practitioners performed clinical assessments that would identify pertinent medical issues relevant to obesity. DR2 confirmed the importance of taking a comprehensive history, including a history of weight changes, to determine what interventions needed to be considered for weight management. He was also a proponent of open ended questioning and assessing motivation for weight loss before proceeding with an intervention.

Health Epidemiologist (HEp)

HEp elaborated the importance of assessing body shape, gender differences, the history of weight patterns and family health history, the impact of injury and racial influences in obesity management. He discussed anthropometric limitations of BMI and promoted the use of waist measurement, particularly for men, and weight, particularly for women. HEp provided reference to assessment tools for health and fitness.

Team Leader (nurse) (N1)

N1 believed group outcomes were optimised when instead of just weighing and measuring clients prior to group participation, they were seen individually and allowed to share their "story." N1 said this allowed rapport to establish. Participants then felt more comfortable in the group. It also allowed the people presenting the groups to tailor the program to the participants' needs.

N1 preferred to have two different professions run weight loss groups. She believed long groups, of at least 6 months duration, worked better. She also suggested starting groups with fortnightly sessions and spreading this out to longer durations as the program progressed.

N1 said that her team had learned that participants preferred the exercise component to be covered earlier. To support their weight loss program they developed an exercise program over 12 weeks where participants were shown how to exercise. The participants then attended the gym twice a week for the duration of the program.

N1 emphasised the importance of sustaining behaviour change after a group completes. She believed it was important to bring back participants once every two or three months for a refresher. She also suggested allowing participants to access the gym to ensure they continued exercising.

Community Health Nurses (N2)

The nurses warned that attrition rates escalated when the duration between sessions progressed to monthly. To optimise adherence they recommended a phone screening to:

- clarify expectations and to detail what outcomes participants can expect;
- identify what participants have tried before to gauge what has and hasn't worked for them;
- determine how important health is for the participant and ascertain if there are any competing issues which may make health less of an issue; and
- obtain a family history of health-related issues.

The nurses further recommended a face-to-face assessment to establish if they could provide the support the prospective participant needed and to determine if they could meet the participant's needs. This meeting allowed the participants to individually relate their story and provided a platform to establish rapport and break down barriers that impact on team integration and retention.

The nurses promoted being responsive to group needs and maintaining a theme of continuous improvement.

Exercise Scientist (ES)

ES believed psychology came first in managing an obese client. She reported being quite harsh with clients at their initial presentation and asked them to go away and really think about the decision to engage in weight management before proceeding. Like DR2, ES believed that unless there was a government incentive that cost that person financially, for example, having to pay for two seats on a plane, the person would likely not be motivated enough to do something about their weight.

ES believed diet should precede exercise. She added that medical clearance needed to be obtained prior to exercise. Once the practitioner had an idea of how physically active people are and what they actually do, that the next stage should focus on behaviour change. She encouraged the use of objective feedback measures such as heart rate monitors and pedometers. ES provided a standard assessment procedure used for physical activity.

Medical Educationalist (MEd)

ES referred to the patient's relationship with health professionals as the "patient journey." He believed that the clinician and patient were often at different stages of the journey when they met and recommended that the clinician work with this. In doing this, he believed that connecting with the client was important. He said, "I want to connect first because care is sacred. Care is personal. And I've got a sacred space with the clinician."

MEd established a program that taught both the patients and the practitioners a shared language, and provided shared information about self-management. He believed this approach put both the practitioner and the client "on the same page" and thereby optimised outcomes.

Appendix O: Stakeholders' Beliefs About Professional Roles

Dentistry

Dentists have expressed an interest in having a role in obesity management if dentistry can be linked to obesity (Curran et al., 2010). However, only the social worker (SW), who worked with clients suffering from eating disorders, referred to dentistry. Dentistry was not referred to in the observational data either. An example of an unexpected omission of dentistry as a contributing factor to diet and weight occurred in a talk I attended that was given by a dietitian researching food wastage in nursing homes. The dietitian said the residents preferred soft foods like soups and desserts and suggested offering these options only to reduce wastage. The researcher maintained a focused dietetic view of the food wastage. She did not refer to teeth (dentistry), musculature or swallowing problems (speech therapy), health conditions (medicine), or psychological issues (psychology and social work) such as depression, resistance to being in a nursing home or cognitive impairment such as dementia.

Solution: Increased awareness of the role of dentition and dentistry in eating as it relates to foods that can be eaten and eating behaviours.

Dietitian

Refer to Section 5.4.1 of the main text.

Exercise Physiologist

The role of the exercise physiologist was the least understood by stakeholders. The strongest example of confusion about the role of an exercise physiologist was made by C1.

- "I wouldn't want to go to an exercise physiologist because, I would assume, just by the name that he's just into exercise. He's really not interested in weight loss. It's more about exercising and toning rather than looking at the wider aspects of why you're putting on weight. I think they're more physical than psychological. My weight gain is definitely psychological" (C1).

There was also a tendency for referrals for exercise to be made to physiotherapists, not exercise physiologists. Examples are listed below.

- "It seems to me what the exercise physiologist takes on as his capacity would be what I take on as my capacity. But I don't know. I've only been aware of

them for about 12 to 18 months. I haven't actually ever referred anybody to them" (DR1). When I asked DR1 who she would send patients to for exercise prescription she said, "I'd send them off to a physio."

- PP did not refer to exercise physiologists. She took on the role of teaching her clients, "How to maintain weight, eat regular healthy meals and do some exercise."
- N1, the team leader of a community based MD team, said, "You need your exercise so you need your physiotherapist. You need the physio for encouraging exercise."

ES was involved in tertiary training of exercise physiologists. ES identified current weaknesses of exercise physiologists as being able to translate their knowledge into meaningful activities for people; to motivate people to exercise and to express empathy for people. She said, "We don't really train them yet as well as they could be trained." Addressing these issues would improve the functionality of exercise physiology services and encourage other professionals to refer to them.

C2's experience with an exercise physiologist echoed ES's sentiments about exercise physiologists in general. "I didn't connect with the exercise physiologist and only saw him once."

DN agreed with ES's comments. She also expressed uncertainty about the role of the exercise physiologist. "I am not sure about ex phys. They know a lot about the body but I don't actually know what else they know. The question for me is do they actually understand the bigger picture. They certainly understand that someone is fat and needs an exercise program. But, do they understand the societal barriers, the financial barriers, the political barriers. I don't know." DN supported her conclusions with feedback she had received from people setting up MD "super clinics" who told her they did not know how exercise physiologists fit because their function is too narrow. She concluded, "I don't think exercise physiologists are broad enough. It is a highly focused degree on biomechanics and physiology."

Conclusion

Despite a lack of clarity surrounding exercise physiologists, I am nominating them as the most appropriate exercise professionals to be included in a MCMD approach to obesity management. I base this decision on the following information from Exercise & Sports Science Australia (ESSA) which clearly defines the role of exercise scientists and exercise physiologists.

- **Exercise scientists** are 3 or 4 year university trained exercise and sports science/human movement studies graduates. They specialise in the design, implementation and evaluation of exercise and physical activity. They provide intervention for improving general health, prevention of chronic diseases, and sports performance enhancement.
- **Exercise physiologists (EPs)** are 4-year University qualified allied health professionals who specialise in the delivery of exercise, lifestyle and behavioural modification programs for the prevention and management of chronic diseases and injuries. EPs provide physical activity and behaviour change support for clients with conditions such as cardiovascular disease, diabetes, osteoporosis, depression, cancer, arthritis, COPD and many more (ESSA, 2013).

Medicare Australia recognises exercise physiology as an allied health profession. This acknowledgement bestows exercise physiologists the capacity to be funded under Medicare, and attract rebates from private health funds. The fact that they are accredited means they must comply with ESSA's regulations in the delivery of their services. This ensures the quality of service received by the client. The combination of these factors, I believe, galvanises their position as the exercise experts on a MCMD weight management team.

Solutions for optimising the role of the exercise physiologist in weight management

- ES agreed that the training of exercise physiologists could be improved, particularly in relation to process skills that would help them apply their knowledge in more practical and empathetic ways.
- More widespread publicity about the role of an exercise physiologist is indicated for both professionals and the general public.

Medical doctors

Opinions about the role of the GP in MCMD obesity management were mixed, inter- and intra-professionally. The doctors (DR1, DR2 and DR3, a doctor who was present at an observation session) believed the GP was the best coordinator or primary care professional for a MCMD approach. Despite this belief, DR1 qualified:

- "The GP that's there might not be the best person to manage it, but it's our brief. That's our reason for being. We help the person manage their lives. The coordination is what we do. It's our job to look at the whole person."

Notwithstanding, DR1 disclosed:

- "I don't initiate (discussion about weight); partly because they would probably lap band me." She further justified: "Weight is a side issue. The last thing I want out of my patients is for them to introspect on their own health."

DR2, despite believing doctors were "the first port of call" for assessing obese clients, and believing they did it well, believed a MCMD assessment was unnecessary.

PP, who also held qualifications in nursing, also believed GPs should coordinate a MCMD approach to weight management. However, she cautioned that GPs were not skilled in diagnosing co-morbid psychological conditions such as eating disorders, depression and anxiety-related disorders, or recognising medications that caused weight gain.

Other stakeholders were not supportive of the role of the doctor in both a MCMD assessment or for weight management.

- "I don't think you need a medical degree to do an assessment" (DN).
- "I don't think GPs have any skills on telling people tips on what they could do with their food. I think it is a waste of time to get GPs to do this." She justified her view, "We did some things with PhDs on GPs' confidence to do things (related to nutrition). Their belief in their skill set and their skill set confidence is down" (DN).
- HEp, N2, C1 and C2 didn't think doctors had the time to support clients with weight management.

- "He's got another 10 people out in the waiting room. He's an hour behind schedule. These are your results. This is what you need to do. Go and do it. You're in and you're out" (C2).
- "I think they're too busy. I don't think that it's their field" (C1).

- SW warned, "There are some horrible GPs out there" (SW).
- C2 made comments about the working alliance she established with the doctors she consulted.
  - In reference to her decision not to use her GP as a weight management consultant she said, "It was that connection thing."
  - Although C2 appreciated the services of the endocrinologist she consulted, she did not believe the endocrinologist genuinely cared about her progress, saying "I think he just sees me as another person coming through that buys his product." C2 regained her weight when she stopped seeing the endocrinologist and attributed her weight loss to the pharmacological management (appetite suppressants) not the relationship with the doctor, his team or the advice.

Solution

- Training doctors in obesity management. However, this suggestion is not without its problems as indicated by the following comment.
  - "We tried training for doctors (in a health promotion strategy for their clients). Couldn't get them! Could not get any engagement" (DN).

Naturopathy

Support for naturopaths was limited as indicated by the following comments.

- "GPs need a naturopath in their practices. However, doctors have an issue trusting naturopaths" (CM).
- DR2 confirmed CM's statement that naturopaths were not supported by doctors when he failed to believe the majority of claims made by CM.
- DN opposed using naturopaths for a MCMD approach because "They do not use a holistic approach and use non-evidence based remedies" (DN).

- None of the other stakeholders (interviews and observation) referred to naturopaths.

Conclusion: At this stage, the inclusion of complementary medicine professionals is not indicated. However, a limitation of this study is that only one person from complementary medicine was interviewed.

Nurse

Nurses were not acknowledged as having a role in weight management outside coordination by any of the stakeholders other than the nurses (N1 and N2) and the MD team they worked with. As N1 and N2 delivered weight management groups quite successfully education about how nurses can be utilised in weight management appeared justified. However, to facilitate this, certain concerns about nurses may need to be addressed. Examples of these concerns are listed next.

- "I guess that the problem for weight management is that most allied health professionals are overweight themselves including people like me. It is very difficult when they are just as much a part of the problem as anyone else. One of our dominant professions has incredible levels of overweight and obesity. Nursing. So, using nursing as the triage grouping may or may not be effective" (DN).
- DR1 was reluctant to have nurses speak to patients before they consulted her. She believed this "fragmentation of care" would impact on her service because patients may not repeat to her what they said to the nurse. She was concerned that if clients spoke with the nurse first they would not repeat what they had said when in consultation with her.

Conclusion

Based on N1 and N2's performance in delivering weight management groups, nurses, when trained, form a viable role in a MCMD approach to obesity management.

Physiotherapy

Traditionally, the primary role of a physiotherapist is to:

- "assess, diagnose and treat people with movement problems caused by a wide variety of joint, muscle and nerve disorders. They use a range of drug-

free techniques to treat and prevent injuries, and assist their clients to maintain fit and healthy bodies" (University of Sydney, 2013).

While certain stakeholders (e.g., DR, N1 and N2) referred their clients to physiotherapists for exercise advice, exercise prescription is not the role of a physiotherapist. DN pointed out the tension between the role of exercise physiologists and physiotherapists. Her view was that if the client needed exercise advice they should be referred to an exercise physiologist.

DN viewed both exercise physiologists and physiotherapists as "too narrow" in focus to triage or case manage an obese client.

DN spoke about "expanding workforce options." She said, "Why not have a physio assistant do basic work? Why do you need a physio when you only need someone to walk up and down? Why do you need someone with a full time degree with all that practice to do something that is very technical in nature?"

Solution

- There is a clear need for role delineation between physiotherapists and exercise physiologists in the management of obesity.

Conclusion

The most cogent role for a physiotherapist is to address clinical issues like "pain and back problems, by addressing core strength and optimising patients' capacity to move" (DR1). As physiotherapists were not directly interviewed, further consultation with physiotherapists is indicated to clarify what they would see as their role in a MCMD approach to obesity management.

Podiatry

The only people to mention podiatry as a profession to be included in a MCMD approach was a podiatrist I sat beside at an event I observed. This podiatrist believed most obese people should be sent to her for shoe assessments before injuring themselves walking.

Conclusion

While only one podiatrist provided feedback, her opinions were practical. Further consultation with podiatrists is indicated to clarify what role they could play in a MCMD approach to obesity management.

Psychology

As pointed out in Section 4.2.3 only C1 and the two doctors (DR1 and DR2) did not report supporting the inclusion of a psychologist in weight management.

- C1 while acknowledging her weight gain was "psychological" believed a dietitian could best address her needs.
- DR1justified, "The psychs are flat out with depression and schizophrenia. I don't want them (the patient) to obsess on their weight. I want them to be involved in the world."
- DR2 did not believe there was evidence proving referral to a psychologist improved motivation levels.

C1 and DR1's comments highlight confusion about professional roles and highlight the need for role clarification and delineation.

The remaining stakeholders supported the role of a psychologist on a MCMD team. The two psychologists who were interviewed discussed the psychologist's roles in obesity as follows.

- PP saw the psychologist's role as: assessing for and treating psychological co-morbidities; identifying why people over-eat; providing psycho-education and training on strategies to take the place of over-eating and to adopt a healthy lifestyle in lieu of dieting; and to provide ongoing support and encouragement. The private practice psychologist believed that all patients with a BMI over 30, and all emotional eaters needed to consult a psychologist. However, she said this does not routinely occur.
- PR believed that psychological factors contributed to the causation and maintenance of obesity. Accordingly, she proposed that psychologists had a major role to play in both obesity research and treatment. PR believed psychological strategies for coping, motivation, change management and focus could assist with poor eating habits and inadequate exercise.

Psychologists providing observational data at an MHPN MD meeting identified barriers to using a psychologist.

- "We have a responsibility to educate patients about what is available and why. For psychology in particular. Because in weight loss, a lot of people

will say "Yes" to a dietitian and even to the exercise physiologist. However, they would say, "Why do I have to see a psychologist?"

Conclusion

Section 4.2.2 provides strong support for psychology as a component of a MCMD approach and therefore of psychologists.

Social workers

Social workers were only mentioned by the social worker that was interviewed and DN. Both professionals believed social workers made good case managers. The lack of reference to social work suggests that they are a profession not commonly associated with weight management.

Conclusion

Considering SW works primarily with eating issues, social workers do have a role in obesity management. This role may need to be defined and communicated to other professionals.

Triage and coordination as a component

There were frequent references to incorporating triage in a MCMD approach. Nurses at a peer networking conference highlighted the difference between triage and screening as follows: "Triage is for prioritisation; screening is a head-to-toe assessment." Comments from stakeholders are listed below.

- "You need a triaging system" (HEp).
- "The nurses do a lot of the role in identifying the clients and doing the triage. However, I don't necessarily believe that is particularly a nursing role" (N1).
- "When I triage the clients, I also refer them on, for example to a social worker or quit smoking program, at the time of triage. It is like a bit of an overall assessment" (N2).
- "Have a triage nurse or the practice nurse with triage tools" (DN). However, DN also countered, "One of our dominant professions has incredible levels of overweight and obesity. Nursing. So, using nursing as the triage grouping may or may not be effective" (DN).

There was stakeholder consensus that a MCMD approach would need to be coordinated.

- "There would need to be some central coordination" (PR).
- "The coordination is what we do" (DR1).
- SW said that her organisation performed its own assessments and coordination of services.
- "I'm happy for someone to do the assessment parts but I wouldn't really want to be working with them. I would want to work with the specialist. Too many people in the mix I think would detract from it (the team approach)" (C2).
- "I don't see that the coordinator is a physio or ex phys. I think they are too narrow. I think the person needs to be a more holistic practitioner and these are nurses, psychs, OTs and dietitians. These are the people with some mental health, some counselling, and some other expertise. We need to match the person to the context of their environment" (DN).
- "I think two therapists is a goer but I don't think having multiple therapists will work. I think you might go to the ex phys to get the exercise prescription but the overarching case manager may be someone different. You may need a case manager who is a psychologist who sends the person intermittently to a dietitian for some additional supportive strategies around food, and to an ex phys about strategies for exercise. It's a bit like the GP specialist's model. The GP case manages you. You have a particular issue. You need your finger cut off, so you go to the surgeon who sends you back to the GP for follow-up. I think you could get a model based on that and the lead practitioner could be an OT, dietitian, nurse or psych. They would send them to the others for specialist advice" (DN).

Triangulation with observation.

The one GP at a MHPN meeting attended by 30 professionals, most of whom were psychologists, stated that GPs should do the initial assessment of overweight and obese clients.

Triangulation with the literature

A literature search did not indicate that triage or coordination were included in MC and/or MD studies.

Re-engineer Workforce

DN believes that a next step is to re-engineer the workforce. She believes there will be a shortage of specialists with the baby boomers reaching retirement and that having allied health assistants will improve cost effectiveness. She said, "My view is you need to change the workforce structure and you need change coming down from the top. The jurisdictions don't want that; they don't want to be told what to do. They believe it should be bottom up." DN said, "Instead of funding allied health professionals at enormous salaries to do work that is ineffective," in relation to weight management, she suggested the use of assistants. However, DN promoted the idea of an overweight assistant not an obesity assistant. She distinguished overweight from obesity with the former condition having fewer complexities. She believed an overweight assistant could address issues such as: strategies for addressing night eating, suggestions for increasing activity and exercise levels given practical considerations like it being dark when the person gets home and environmental situations such as the size of their garden and whether they are near a park. DN summarised needing "Someone who is trained in a holistic approach because even if you have an assessment tool that identifies issues you will still need to drill down."

No one else offered the solution of re-engineering the workforce as a way to provide cost effective services for obesity management.

Literature supporting the concept of offering less qualified people to deliver weight interventions included a review of worksite nutrition and physical activity programs for weight loss (Anderson et al., 2009). Program effectiveness bore no relationship to whether the program was delivered by a lay person or a professional.

Summary

The above data highlights barriers in the *practitioner factor, roles and boundaries*. These include: the misconceptions about one another's roles, boundary violations, shared roles and functions and the potential for "turf wars," the cost of using specialists to perform technical roles, and the absence of models to get professionals in multiple roles to work effectively together. Poor role clarity has been known to impact on work performance and team performance and therefore has the potential to

influence treatment outcomes including weight loss. Clarifying barriers inherent in the *practitioner factor, roles and boundaries,* is likely to contribute to better outcomes for the client. Solutions to address these barriers are provided in the final.

Appendix P: DAA Role Statement Eating Disorders

Detailed Role Statement

Title: Role Statement for Accredited Practising Dietitians practising in the area of Eating Disorders

Developed by: Mellisa Ashley, Deanne Harris, Stephanie Heard, Gabriella Heruc, Shane Jeffrey, Tara MacGregor, Vicki O'Dwyer, Michelle Robertson and the Eating Disorders Interest Group

Introduction

Accredited Practising Dietitians (APDs) are recognised professionals with the qualifications and skills to provide expert nutrition and dietary therapy and advice. APDs are qualified to provide medical nutrition therapy to and advise individuals and groups on nutrition related matters.

APDs have evidence based and critical thinking university training accredited by DAA, undertake ongoing professional development and comply with the Associations guidelines for best practice. They are committed to the DAA Code of Professional Conduct and Statement of Ethical Practice, and to providing quality service.

APD is the only national credential recognised by the Australian Government, Medicare, the Department of Veterans Affairs and most private health funds as the quality standard for nutrition and dietetics services in Australia. It is a recognised trademark protected by law.

Purpose of this Role Statement

The purpose of this Role Statement is:

- To define the roles an APD may fulfil when working in the area of Eating Disorders
- To describe the knowledge base an APD will need to have/develop when working in the field of eating disorders
- To promote the knowledge and expertise of an APD, broadly and in the area of Eating Disorders

Background

Eating disorders are psychological conditions underscored by eating and body image concerns, which can have severe, long-term medical, psychological and social consequences. These conditions can impact on every component of an individual's life and, for some, are potentially life-threatening.

- In Australia, lifetime prevalence of AN has been reported at 1.9%, with an additional 2.4% meeting the criteria for 'partial AN' (absence of amenorrhoea)(Wade, Bergin, Tiggemann, Bulik, & Fairburn, 2006). 2.9% of the women met criteria for BN, with an additional 2.9% of the women meeting criteria for binge-eating disorder, while 5.3% met criteria for purging disorder unaccompanied by binge-eating. Furthermore, over the last decade, there has been an increase in disordered eating behaviours within Australia(Hay, Mond, Buttner, & Darby, 2008).
- Across the lifespan, best practice guidelines for treatment recommends a continuum of care ranging from primary level treatment (e.g. GPs, school counsellors) through to more intensive levels such as day-treatment and

inpatient management[3]. Typically, this involves a multidisciplinary team with a dietitian forming an integral part[4].

Knowledge and skills in this area of practice

- Thorough knowledge of the physiological and psychological effects of starvation, including management of refeeding syndrome.
- A comprehensive understanding of mental health, its relationship with nutrition and eating behaviour.
- Knowledge of the functional nature of eating disorders.
- Understand psychological engagement and the client centred models used in the management of eating disorders. These may include (but not exclusively), cognitive behavioural therapy (CBT), dialectical behaviour therapy (DBT), acceptance and commitment therapy (ACT), Maudsley-based family therapy and motivational enhancement therapy.
- The nutrition counselling processes (engagement and education) involved in achieving physical re-nourishment and restoration of normalised eating behaviours
- As the treatment relationship can be long-term, skills in maintaining therapeutic/treatment boundaries are crucial.
- An ability to self-reflect on one's practice, skills and client-therapist relationship, and to seek appropriate supervision on a regular basis.
- Practice with evidence-based knowledge, gained through ongoing professional development.

Key activities for Dietitians working in this area of practice at service/organisational level and individual level.

- Assessment of nutritional state by anthropometric measurements as clinically appropriate (e.g. height, weight, BMI), weight history, biochemical indices, medical history, physical symptoms, medications, physical activity levels, diet history and eating behaviours.
- Assessing appropriateness of a referral considering level of risk of client's nutrition status, the individual's motivation to change and the suitability of inpatient or outpatient care
- Promote a therapeutic engagement by expressing empathy, unconditional positive regard, congruence and actively listening to the client.
- Provide structure, education and therapeutic support to encourage a return to normal/healthy nutritional intake and eating behaviours.
- Assist in achieving and maintaining a healthy body weight for the individual.
- Create a multidisciplinary team for best practice management of the client, and be actively involved in team meetings or correspondence with other health professionals within the team.

- Regular supervision with an appropriate clinician (either intra or inter-disciplinary).

Activities Dietitians working in this area of practice should not undertake

- Sole management and treatment of clients, without the support of a GP and ideally, where available, a multidisciplinary team
- Practising in the area of Eating Disorders without having clinical supervision
- Provide psychological counselling outside of their skills base, contract with the client and /or concerning matters other than eating behaviours
- Conducting skin-fold testing and other 'unhelpful' anthropometric testing.

Review date: July 2015

Appendix Q: Models of Collaboration

Table Q1 *Model of Collaboration – Dietitian-Exercises Physiologist Example* (DAA & AAESS, 2008)

<table>
<tr><th></th><th>ACCREDITED PRACTISING DIETITIAN</th><th>ACCREDITED EXERCISE PHYSIOLOGIST</th></tr>
<tr><td rowspan="2">Common Assessment</td><td colspan="2">Assessment
Medical history
Chronic disease history e.g. diabetes
Previous care/education
Biomedical profile e.g. (lipids/HbA1c/BP)
Anthropometry
Current activity level
Smoking/alcohol status
Medications
Current self-care
Special needs</td></tr>
<tr><td colspan="2">Behavioural History & Readiness for Change
Motivational interviewing
Readiness for change
Goal setting
Barriers and enablers to change with respect to diet & exercise</td></tr>
<tr><td>Profession Specific Assessment</td><td>General Exercise History
Current or previous leisure time activity
Occupational, household, incidental activity
Have they seen an AEP?
Detailed Diet History
Previous APD input?
Previous dietary modifications/hx
Detailed eating pattern
Food types/brands
Detailed serving sizes
Food frequency
Cooking methods/skills
Limitations/practical issues
GIT conditions</td><td>General Diet History
Dietary habits
Regular eating patterns
Core food groups
Have they seen an APD?
Detailed Exercise History
Previous AEP input?
Previous exercise experience
Contraindications or barriers to exercise
Particular consideration to cardiovascular, metabolic, neurological or musculoskeletal conditions that may affect exercise capacity/maintenance
Pre-exercise screening & risk factor stratification
Measurement of physiological parameters</td></tr>
<tr><td>Professional Specific Implementati</td><td colspan="2">PROFESSIONAL PARTNERSHIP, CROSS REFERRAL OR JOINT PROGRAM DELIVERY MODEL</td></tr>
</table>

	Medical Nutrition Therapy • Detailed eating pattern including timing of meals • Food types/brands • Detailed serving sizes and amounts, frequency • Foods to avoid or limit • Cooking methods/skills • Practical solutions • Reducing the risk of complications (acute & chronic) • Treating complications e.g. hypoglycaemia • Eating before and after exercise • Provision of appropriate health information and resources **Diabetes Specific Considerations** • Glycaemic index and glycaemic load • Weight loss • Hyperlipidaemia and hypertension • Other diabetes complications	**Clinical Exercise Prescription** • FITTA (Frequency, Intensity, Time, Type, Adherence) • Instructional/skill acquisition/progression • Home, gym or AEP Practice support • Pharmacological exercise interactions • Overcoming mobility limitations • Provision of appropriate health information and resources **Diabetes Specific Considerations** • Neuropathy (balance, wound risk) • Claudication management • Cardiovascular (e.g. automatic neuropathy) • Education and guidance to reduce risk of adverse events such as exercise-induced hypoglycaemia and dehydration • Other diabetes complications
	SCHEDULE REVIEW AND FACILITATE REFERRAL	

Appendix R: Barriers for a MCMD Approach

Process factors

There are four parent nodes housed under the *process factor* metacode. These include: *process approach, client processes, practitioner processes and team processes.* It is not within the constraints of this thesis research to address all the potential barriers in these areas. Subsequently I have elected to focus on those factors that will have the biggest initial impact on the effectiveness of a MCMD approach, namely *practitioner process factors* and *team process factors*. The reason I chose to focus on the practitioner process factor is best explained by MEd. MEd said that prior to developing his business in medical education he scoured the literature to find the best evidence for effecting change. His search led him to the conclusion that "changing clinician behaviour related to better patient health outcomes." This finding is supported by work in psychotherapy (Duncan et al., 2009). However, a Cochrane review that investigated what interventions would improve the management of diabetes found that only targeting practitioners behaviour did not alter patient outcomes unless it was accompanied by interventions also targeting the patient (Renders et al., 2001). A further study exploring GPs' and nurses experiences working with obese patients in primary health care supported the finding of the Cochrane review (Hansson et al., 2011).

Ensuing sections elaborate on practitioner process barriers that were identified by the stakeholders as being of the most significance.

1. Practitioner Process Barriers

Silo Mentality

This section is explicated in the main body of the thesis in Section 5.6.1.

Practitioner Time Constraints

Time constraints hinder effective service. Medical stakeholders (DR1, DR2 & DR3) identified themselves as the most appropriate profession to conduct a MCMD assessment. However, non-medical stakeholders suggested doctors were compromised by time constraints that hampered effective weight management services.

- C1 and C2 complained about GPs having no time − "you're in and you're out" (C2); "you feel like a sausage factory in most doctors."
- DN warned, "The doctor won't use anything that is not fast."

- "If the doctor's only got 3 minutes he's go to push his patients through. He can't do much in 3 minutes" (MEd).
- ES determined that it was important to train people to like exercise and increase their confidence in exercising. However, she added that no health professional including a doctor could train a person to like exercise in a short medical consultation.
- HEp said the emergence of "3-minute medicine" in some sectors of Australian health inhibited the opportunity to influence clinician-patient interactions. He gave the example of an obesity assessment developed by a colleague becoming, "too complicated for people to do in general practice. Doctors just don't have the time to do that."
- DR1, DR2, DN, N1, N2, MEd and C1 and C2 reinforced HEp's message. They recommended the use of open-ended questions when assessing patients in relation to weight. However, open-ended questioning is hindered in general medicine settings where not only are fees based on time, most consultations are of a short duration.

Doctor's time constraints present a significant barrier to them being involved in a MCMD approach. Despite doctors such as DR1 and DR3 believing it is their primary care mandate to coordinate their patients' referrals to other professionals, most stakeholders do not believe they have the time to do it.

A suggestion proffered by DN was that doctors use their long consultation code for clients seeking weight management intervention. MEd made the further suggestion, "If you're going to invest half an hour, what's the best thing you can do with that time?"

Mismatch

Mismatches between the client and the practitioner, the client and the intervention, and the service and client readiness were identified as potential barriers to effective weight management outcomes.

Service-Client Readiness

Comments identifying service-client readiness as a barrier are listed next.

- "There is a mismatch between clinicians and where the patients are on their journey. The clinicians shoot for a level of adherence the patient is not ready for" (MEd).
- "The majority of folk that are referred to the clinic are not really interested, are referred against their real desire, and don't do well under our care" (DR2).
- "When you go to a GP you are usually not well. You are not ready to attack lifestyle issues" (DN).
- "You can give me all the tools and you can give me all the motivation and encouragement and advice, but until I'm ready to do something with it, it's useless. It has to be me. No one else can stop me eating" (C2).

ES projected a realistic viewpoint stating, "There's going to be a chunk of the population who don't care (about weight loss) and there's not a great deal you can do about that. If you're going to invest your effort that's probably not the group you really want to invest your effort in." N1, SW and CM assessed for a client's readiness to change before proceeding with treatment.

Client-practitioner fit

Both C1 and C2 admitted that they discontinued consulting professionals they did not connect with. C2 admitted, "If I don't connect with the person, I just don't keep going."

SW described how her workplace address the issue of client-practitioner fit: "We determine the issues the client wants to work on and then we do a matching process. Does the client want counselling or group work? What are they looking for in a counsellor" (SW).

Practices Impacting Practitioner Performance

Working Alliance*:*

As noted in the section above, if clients cannot establish an alliance with their treating professional, they are likely to withdraw from treatment. SW highlighted this conclusion in the following statement: "We need to have an alliance with the GP and the nutritionist to help outcomes."

Below are factors stakeholders agreed would contribute to the establishment of rapport and a good working alliance. If these factors are absent, their absence can become barriers to effective weight management.

a) Partnerships

The only stakeholders to speak explicitly and at length about client-therapist partnerships were MEd, who trains clinicians in how to partner with their clients; and SW and the nurses, N1 and N2, who worked in a MD team.

MEd emphasised, "It's that partnership that is really important. It contributes to better patient experience and promotes better patient self-management. We bring in the patient's voice early in the journey. There's agenda setting where the patient sets the agenda in consultation with the clinician, then planning and follow-up. We encourage patient input." MEd said that he then obtained patient feedback on the partnership skills of the clinicians using a questionnaire recommended by the Australian Commission on Safety and Quality in Health Care (2010). Early evaluation studies on the impact of Med's training programs in the UK indicate that hospitalisation rates have reduced in the areas he trained clinicians and their patients in his system. Pen and pencil instruments administered to clients as a way to generate feedback have also resulted in improved retention and treatment outcomes in psychotherapy (Miller et al., 2005). Miller et al. have developed a user-friendly system that could be easily integrated into long term weight management using a MCMD approach (Duncan, 2012). The system incorporates a transparent feedback process, a measurement of working alliance and an outcome rating scale, each of which involve collaboration with the client.

b) Empathy

C1 and C2 both admitted to discontinuing services with professionals they believed did not have empathy or who they didn't connect with. C1 had the following to say:

- "I just want somebody to be empathetic. To be understanding. To sit there and take the time to really listen; not be judgmental. Encouragement, empathy and kindness. That's all" (C1).

The majority of professionals (N1, N2, SW, DN, MEd, ES and PP) interviewed mentioned the role of empathy in influencing outcomes. Of those professionals who

did not refer to empathy, CM, HEp and PR did not work with clients, DR1 and DR2 did. Comments about empathy are listed below.

- "Exercise trainers need to have empathy" (ES).
- "Let the client tell their story so they feel important and validated. Develop rapport and a relationship." (N2)

c) Telling versus asking

C2 emphasised that other people telling her to lose weight did not work. She openly admitted, "There were no external forces that could make me change. It's my decision." Neither C1 nor C2 wanted to be told what to do.

The stakeholders with professional backgrounds concurred about the futility of "telling" clients what to do. Sample comments are provided below.

- "The GP sets the treatment plan, tells the patient what to do and the patient never comes back" (MEd).
- "The reality is with weight management, if you don't think you need any help, someone telling you that you need to do something is not helpful" (DN).
- A practitioner who offering observational data provided feedback from a client who said, "You are the first person to actually ask me what I wanted and what I needed from Queensland Health. This is the first time I have ever been listened to." The client had been in the health system for 5 years for issues relating to substance abuse.

N1 identified the directive approach of many practitioners as unhelpful and suggested asking the client what they wanted and what they thought was appropriate for them. "A really good question is to ask them, 'What's worked in the past and what hasn't?' It really gets them to think about what they did to sabotage themselves." MEd concurred, "Asking questions sends a message to the patient, 'Hey, you're important in this work we are doing together. I value your comments.'"

d) Open-ended questions

There was strong endorsement for the use of open-ended questioning by DR1, DR2, DN, N1, N2, MEd, SW, C1 and C2. The general consensus was that open-ended questioning helped the practitioner to more fully understand the motivation and needs

of the individual client. Open-ended questioning also informed triage and interventions and acted as a tool to develop a therapeutic alliance.

Unfortunately, while open-ended questioning was regarded as necessary, barriers to using open-ending questioning were evident in a number of comments stakeholders made. Examples are outlined below.

- DR2 said, "Asking people whether they're psychologically interested in change or making a change is important." However, he cautioned, "While we all do it in an informal sense, we're not very good at it."
- "The problem is open-ended questioning takes a lot of time and it is less structured. The doctor won't use anything that is not fast" (DN).

Self-management

Only DN and MEd mentioned the role of self-management as a technique to engage the client and optimise the working alliance. DN said, "Public health approaches fail because they do not engage at all with the public. Self-management approaches engage with the client. You have a therapeutic relationship, but the client has ownership. Overweight is so complex. If you don't have the client generating the suggestions and a counsellor asking 'Why do you do this? How do you get your food? etc.', you won't engage the client and give them ownership."

MEd provided training in self-management skills to health professionals. He said, "The doctor will say the system won't allow them to practice like that. So I say, 'I'm not here to change the system. I can't change the fact that in your practice you have to see 40 patients in an hour. What I can change is your consultation style within a system that's supportive of that.'" MEd qualified, "Often it's not the system, the health system or the community. It's the practice."

2. Team Process Barriers

Team Processes

For a MCMD approach to be effective, participating professionals would benefit from being able to work in teams and team processes would be required to facilitate effective team functioning (McNair, 2005; World Health Organisation, 1988). As previously noted, PR pointed out that "coherence" among the disciplines may be an issue in managing a MD team. N1, a team leader, concurred with the following comment:

- "The team is the central part. If your approach is going to work well, you've got to have a good team. How you get a good team is about getting the right person for the position. You might not take the person with the most expertise; you'll take the person who will fit in with the team."

N1 said that team leadership was crucial and referred to a number of the issues she experienced. Her comments are listed below.

- "You need people who share information. One of the things I have concerns about is the two people working in the obesity program are not including the whole team. I have to look at how to get around it."
- "If team members are negative and don't have a passion for it, it's going to rub off on the rest of the team."
- "You need differences and similarities. If you have too many people giving new ideas and no finishers, you're not going to get anywhere."
- "You will lose team members and that's a barrier."
- "You need to manage forming, norming, storming in teams."
- "You have to manage and respect the different disciplines. You have to role model that."

PP highlighted team process barriers from her perspective in private practice:

- "The first thing I can think of in working together is trying to get hold of each other to talk to each other because everyone is busy. It's not that we don't want to work together; it's the logistics of it" (PP).

Observational data

- It is difficult to gather practitioners from different disciplines to forums aimed at optimising MCMD approaches. For example, 18 professionals attended an inaugural dinner for a Mental Health Professional Network meeting for eating disorders. Only four people attended the follow-up meeting. The network group did not proceed and was subsumed into another MHPN initiative.
- A number of MD meetings I attended to collect observational data did not have processes that optimise team management or outcomes. Even when

there were processes practitioners did not function well in MD meetings and it was difficult to generate outcomes. They talked over one another and did not follow-up on other people's ideas. Overall, the majority of MD meetings I attended failed to achieve an outcome and often did not remain focused on the task at hand. A mental health support officer I spoke to said that a team she joined initially had regular case reviews. She said people talked over one another and did not respect team process. Over the course of several months, people stopped attending.

- There is no coordinated approach for obesity management. In particular, psychologists do not understand obesity or know how they fit in with other professions in managing obesity.
- As noted by a participant in one particular MD forum, "We are scattered and not focused. Currently, we beaver away at our own disciplines. We need to hire a director with a vision".

Literature

Team function depends on the platform the team is operating in (e.g. centralised healthcare unit versus decentralised private practitioners) and on the needs of the client. If the client has more complex issues the greater the need for collaboration among team members (Oandasan et al., 2006). Similarly, the more decentralised the team, the greater the need for a coordinator to manage the team and its outcomes.

Conclusion

To assist in the effectiveness of a MCMD approach to obesity management attention must be devoted to team processes.

Systems Issues

MEd works with MD system clinicians and trains them in how to support their patients in self-management. His aim is to help MD clinicians deliver seamless services in the systems they operate in. He used Ed Wagner's CCM model (Wagner et al., 2001) and explained it had three components:

1. "The larger community system - what are the systems in the community that enable or are barriers to self-management, for example, community support."

2. “The health system – for example 3-minute medicine. I say I am not here to change the system. We look at the system to see what the system can do to help support self-management. What I can change is your consultation style within a system that's supportive of that.”

3. “The consultation style, the clinician-patient interaction. And that is where most of the evidence is. That's what we built our educational framework on. Early evaluation data from one program indicates that hospitalisation rates have reduced.”

MEd says his aim is to “change the practitioner’s consultation style within a system that’s supportive of that.” He warned that the obstacles I would confront with a MCMD approach were “shared speak” and managing “different systems within each of the entities” (e.g. within sectors or institutions).

Shared language

As noted above, MEd identified shared language as one of the two main barriers in the Australian health system. He explained, “One of the problems is that patients aren't on the same page, and therefore they are getting mixed stories and mixed language. And, that goes against the concept of self-management speak.” Accordingly, he promoted “seamlessness” in terms of “clinician speak.” “So that when that patient moves from dietitian to psychologist to GP to nurse, the team has shared language around self-management principles.”

MEd identified shared language as an essential team process to ensure the effectiveness of a MCMD approach. SW concurred, “We need to ensure we are not giving mixed messages.”

Shared records

DR1 was the only stakeholder to voluntarily discuss shared records. MEd discussed it, but only because I asked him. He referred to the Personally Controlled Electronic Health Record that was released in Australia in 2012. He commented, “It's good, but unfortunately, at the moment, the patient can't see it. It’s really a record between clinicians. So when you go to the dietitian, and then you go to the GP, the GP can see what happened with the dietitian.” DR1 said a limitation of the record was that doctors had to upload allied health information. He explained that doctors were not funded to perform this operation and did not have the time. MEd’s suggestion was, “I

think we should do as the Americans do. Patient has the record. Patient can change the record."

Practitioner Pain

MEd viewed individual practitioners as integral components of the team and recognised the benefit of addressing "practitioner pain." He provided quotes given to him by practitioners to exemplify "practitioner pain." They included: "I hate when people get sent to me and they don't want to change"; "I hate them keeping on coming back without change"; "I can't get anywhere. I like results"; and "I hate the system." MEd said he explored the practitioners' pain and provided them with tools to engage the client. He reported teaching the practitioners communication skills that promoted self-management within patients.

Obesogenic Environment (environmental factor)

Despite general acknowledgement of the environment's contribution to "globesity," very few stakeholders commented on the environment's role in a MCMD approach. The few comments about the environment were as follows.

- DN stated, "Overweight and obesity are an inexorable result of wealth and development" (DN).
- A client concurred, "We don't have to deny ourselves, we have the money to indulge ourselves."
- HEp agreed, "The cause of obesity is economic growth. If you look at all countries as they develop, their BMI levels increase with the GDP" (HEp).
- In relation to barriers arising from the physical environment DN said, "There is no point telling people to walk if they are too scared to walk outside, if it is dark, poorly lit, there are no paths, there are no bike tracks, and there are dogs."

Most of the stakeholders interviewed worked with obesity on an individual basis (PP, DR1, DR2, HEp, and SW). Others worked in research (ES, PR, CM, and DN) and three worked in team environments (N1, N2, MEd). While stakeholders like DN believed that the only way to attack globesity was with an individual approach, other stakeholders (DR2, ES and HEp) gave more support to environmental approaches. For example, DR2 made the following comment.

- "The only way you're going to be able to do anything about this societal problem is through legislation of some description."

While supporting environmental approaches, DR2 dowsed his view with pessimism in the following comment.

- "However, as you know, you've got no one on the planet that is going to do that at least in the foreseeable future."

Knowledge and Training (Practitioner factor)

Lack of knowledge and training in obesity management and working in MD teams was identified as a factor limiting practitioners' ability to implement effective weight management services. These training and education deficits have likely contributed to role confusion and role disputes. Reported training barriers for the different professions are outlined in Table 5.5.

Lack of knowledge about professional's practice

The discourse in the interviews identified a lack of knowledge among professionals about the content of, and processes within, the other professions. Examples include:

- "There's no test for depression. Depression is a multitude of diseases" (DR1).
    - This is incorrect. Formal criteria has been established to assist in the accurate diagnosis of depression (First, Frances, & Pincus, 2005). There are numerous validated tests to assess for depression (Lovibond & Lovibond, 1995).
- DR1's comment, "It seems to me what the exercise physiologist takes on as his capacity would be what I take on as my capacity" was disputed by ES. ES said, "there is a distinction between physical activity promotion and exercise prescription and very few people understand the energy balance model and understand the energy of exercise."

Table R

Training and Education Barriers for the Different Professions

Stakeholder views

Doctors

- "We did some things with PhDs on GPs' confidence to do things. Their belief in their skill set and confidence is down" (DN).

- DR1 agreed that it was "probably true that GPs don't have the time or expertise to deal with obesity."

Dietitians

- "I have taught dietetics for over 20 years now. If you take a dietetics course you would be lucky to get one week training on obesity. You can't possibly have any skills. You just can't do it all" (DN).

- "If you look at continuing professional development (CPD) you will see it is focused on content, not process" (DN).

Exercise Experts

- ES said, "There are lots of dodgy merchants around who don't understand exercise. They can exercise but they don't understand how to get other people who either have poor motor control or poor fitness to exercise."

Nurses

- "We ran extensive in-service with practice nurses (for a health promotion service), but the nurses didn't understand even the simplest stuff" (DN).

- "We're continually doing our own research into the weight management area, but there's such a massive body of work. And, it's so conflicting" (N2).

Professionals in general

- DN said, "I don't think health professionals have enough repertoires. I don't think they have the repertoire to assess or decide (about obesity)."

- "It's like going to Jenny Craig versus going to the endocrinologist. How well trained are those people. They don't have that knowledge and expertise of spotting something in a test result that the endocrinologist does" (C2).

- "Our health professionals in the medical field don't understand exercise or energetics" (ES).

- N2 identified poor delivery of training programs by professionals for their weight management programs as a barrier. N2 said, "A lot of our guest speakers don't know the material beforehand and get it the day before and then read off the slides, which is obviously not good."

- "GPs don't know what range of community services or private practitioners are available. So they tend to refer to one or two people they know and don't end up with the best kind of approach for the person" (SW)

The lack of knowledge shown by lay people about the expertise areas of various professionals and the boundaries between professional roles has already been

discussed in Section 5.4.1 and 5.4.3. A typical example though, would be C1's reported inaccuracies about the energetics of weight loss. She said, "I still exercise, but not to the same extent. I think that's probably because I always thought that I had to exercise to lose weight. But, with the appetite suppressants, you can restrict the calorie intake so dramatically that you get the weight loss without expending any extra energy."

Observational data

Observational data supported the interview data as follows:

- Doctors attending a presentation on the preliminary results of the current research cited lack of knowledge and training in obesity management as a major barrier to addressing the obesity problem (observation).
- A psychologist commented: "There are not many obesity trainings".
- Professor Chris Fairburn summarised the situation by stating at an eating disorder workshop he ran in Melbourne in mid-2011 that there were currently no evidence-based training programs to instruct practitioners in the delivery of evidence-based treatment modalities (observation).

Solutions for knowledge and training

- DN suggested changing the content of dietetic courses that currently focus on science. She believed more counselling and psychology-related content was indicated.
- N2 focused on ongoing professional development and encouraging team members to share information.
- N1 suggested using a nursing model for training. "It's being able to move to another area where you don't have as much knowledge and taking on that challenge. They call the model novice to expert."

Appendix S: Obesity Education and Training

Data collected during this research highlighted the following examples of knowledge that may be required by practitioners using a MCMD model for weight management.

- *Psychological:* This includes knowledge of psychological comorbidities such as obesity-related depression and anxiety, low self-esteem, poor body image and lack of confidence (Atlantis & Ball, 2008; National Health and Medical Research Council, 2013).
- *Pharmacological:* Awareness of therapeutic drugs associated with weight gain such as antipsychotics like Zyprexa and some antidepressants. Similarly, other drugs can cause weight loss, nausea and have other gastro-intestinal side effects that impact appetite and eating (National Health and Medical Research Council, 2003a, 2012b).
- *Medical:* Knowledge of obesity-related medical comorbidities outlined in Section 1.2.3.
- *Physiological:* Knowledge about the role of hormones in appetite regulation, mechanisms that cause the body to defend against weight loss and adipocyte physiology is relevant to practitioners working with obesity (Leidy, Apolzan, Mattes, & Campbell, 2010).
- *Social:* Knowledge regarding social factors such as the importance of social support and the impact of bullying and stigmatisation are germane to obesity management e.g., the impact of stigmatisation on obese children in school settings, and selection bias against obese people in recruitment situations (Leahey, LaRose, Fava, & Wing, 2011; Pizzi & Vroman, 2013).
- *Behavioural:* Knowledge about how habits affect eating and other health-related behaviours would be helpful in teaching behaviour modification strategies to clients (Bryant et al., 2008; Kemp, Bui, & Grier, 2011).
- *Exercise-related issues.* Knowledge about the client's capacity for physical activity informs the development of exercise plans. As pointed out by one stakeholder, very few professionals understand energy expenditure and energy intake (Curioni & Lourenço, 2005; Shaw et al., 2009).

- *Nutritional:* Knowledge of nutritional factors influencing obesity and weight loss management is crucial (National Health and Medical Research Council, 2013)
- *Process:* Professionals require training in how to translate knowledge into practice and to help facilitate client, health-related behaviour change.